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ABSTRACT

Data on the achievement of 9-, 13-, and 17-year-old Hispanos in school in the areas of social studies, science, mathematics, career and occupational development (COD), and reading were collected between fall of 1971 and spring of 1975. Results were examined in relation to the achievement levels of students in the nation as a whole and those of black and white students. Representing a cross-section of typical schools across the country, the sample consisted of 75,000 students, of which about 2,500 answered a given question. Results were reported by age, region (Northeast and West), sex, and level of parental education. Among the results were: Hispanic achievement was consistently below that of the total national age population and of white students; Hispanic achievement was often closer to national levels than black achievement; the achievement of male Hispanos was consistently closer to national levels than that of females on the science items; and students who reported that one parent had at least graduated from high school was closer to the national level than those who reported that neither parent had graduated. Appended are: definitions of national assessment Hispanic-reporting categories, special analyses of reading items, statistics of the achievement of the white and black groups in each area; and proportion of Hispanic students within the national assessment samples. (NQ)

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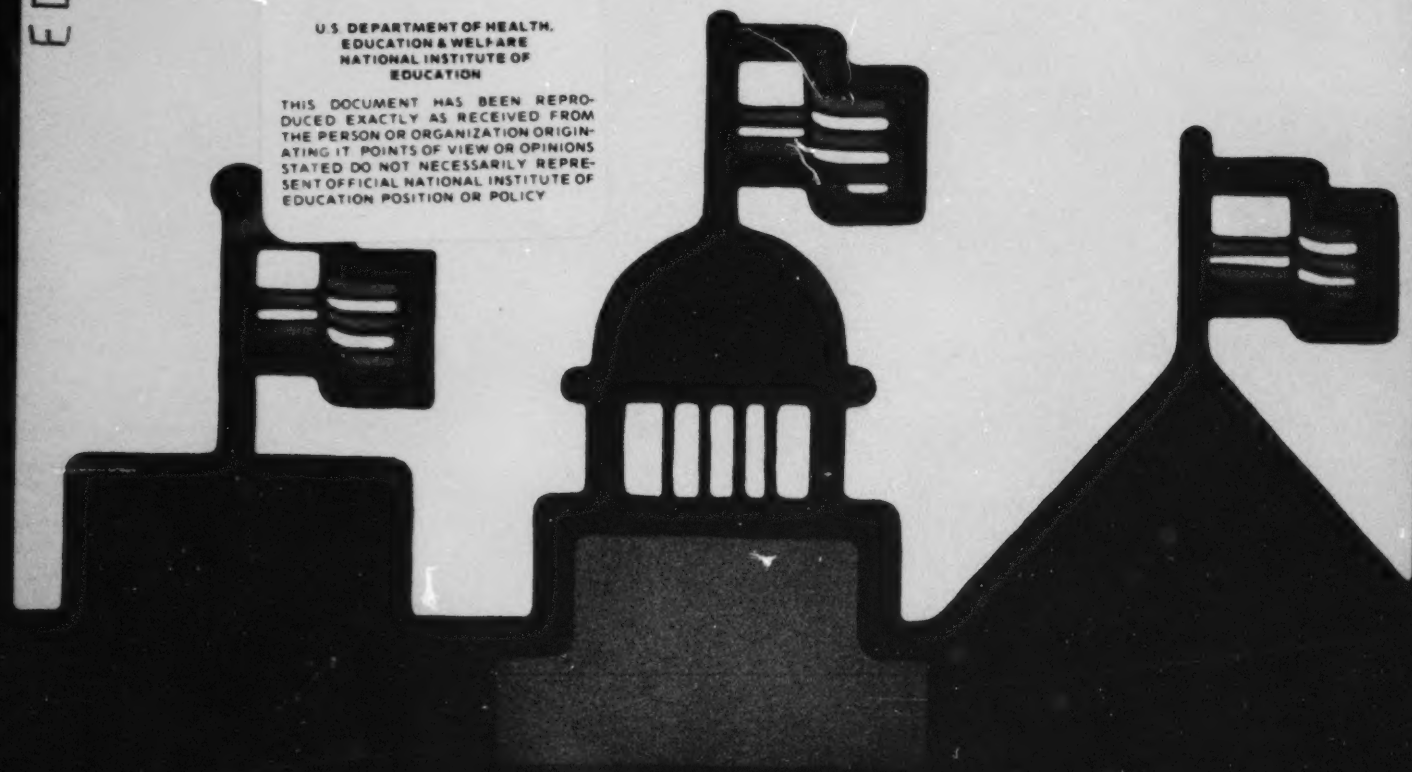

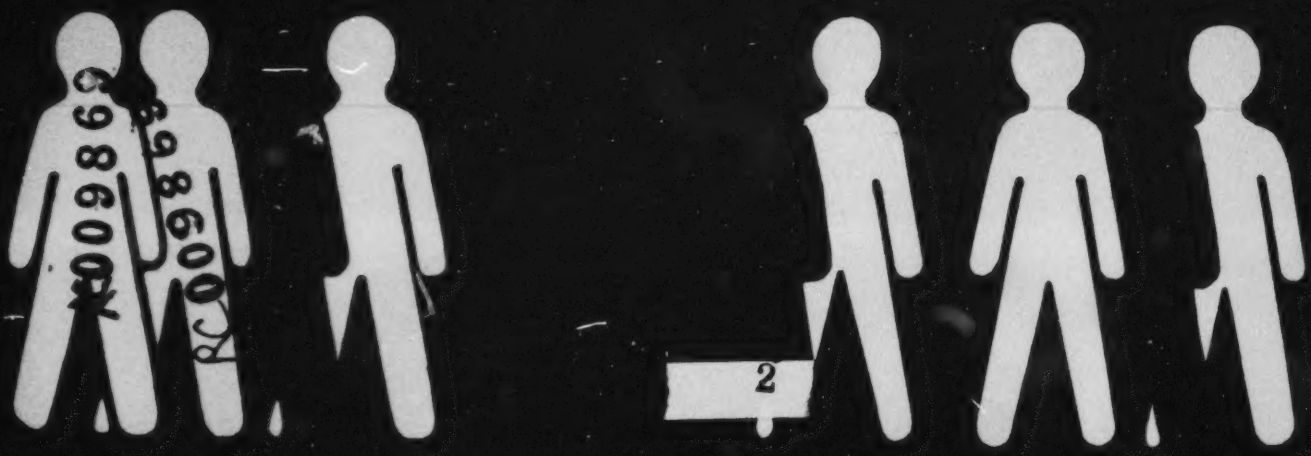

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Roy H. Forbes
Project Director

CHAPTER 1

A PERSPECTIVE ON THE DATA

Developmental History

Each year since 1969, the National Assessment of Educational Progress (NAEP) has gathered census-like information about levels of educational achievement across the country and reported the findings to the nation.

Over these past seven years National Assessment has collected achievement data from representative samples of young Americans in 10 different learning areas. [1] The participants were selected from four age levels — 9, 13, 17 and 26-35 — which correspond to four key stages in the education of most individuals: the end of primary school, junior high school, high school and a few years past the end of formal schooling. The individuals were also classified according to region of the country, sex, race, parental education, and size and type of community to provide additional information about types of schools and students. Although National Assessment has collected information about the racial/cultural characteristics of the American people since 1969, until 1971 this information was categorized into only three groups: black, white and "other." In 1971, a fourth racial/cultural category, Hispanic-Americans, was added to the survey description.[2] Due to the fact that until 1975 the emphasis for reporting data was at the level of individual test items and the sample of Hispanos for any *one* item was quite small, Hispanic achievement has never been reported to the American public. However, since 1975 National Assessment has been reporting the mean achievement across groups of items. As a result, the sample of Hispanic students is adequate to report reliable achievement data nationally and in the Northeastern and Western regions.

This report explores Hispanic achievement in five learning areas: social studies, science, mathematics, career and occupational development and reading. The data were collected between the fall of 1971 and the spring of 1975. Achievement results for 9-year-olds, 13-year-olds and 17-year-olds in school are provided in each of the five learning areas. The adult samples were not large enough to report Hispanic data separately.

Limitations of the Methodology

The National Assessment data in this report provide a baseline measure of the achievement of a large segment of the Hispanic population for the years 1971 to 1975. Hispanic achievement was examined in relation to the achievement levels of students in the nation as a whole, black students and white students on exactly the same set of objectives and test questions.

The objectives and questions were developed by a consensus procedure that involved university educators, teachers and concerned citizens. The sample was drawn to represent a cross-section of typical schools across the country.[3]

[1] Art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies, writing.

[2] Until 1975 only Puerto Rican and Mexican-Americans were included in the Hispanic category; see the section in this chapter entitled "Limitations of the Methodology" for a complete description of the methodology used to categorize students by racial/cultural background.

[3] See Appendix A for a more detailed explanation of the procedures involved.

The consensus procedure used to establish the objectives and questions reflected current national values about what students should know. This procedure assumes a certain homogeneity of values that does not necessarily exist in our society. While American public education has always been premised on the idea of a homogeneous society, we know that differences do in fact exist and are part of the American experience. Since the questions and objectives were not specifically designed to measure the values of the various Spanish-speaking cultures and were only administered in English, the results probably reflect more than the acquisition of cognitive skills and knowledges. For the Hispanic students the questions likely measure English language proficiency and the acquisition of majority cultural values as well. Since there were no mechanisms in the National Assessment instruments to deal with these problems, the effect of these factors on Hispanic achievement are not known.

Like all statistical representations, these data provide an incomplete picture because the entire population was not assessed. The particular sample in this survey is only one of a large number of all possible samples of the same size that could have been selected using the same sample design; and the average, or mean, percents correct computed from the different samples could well differ from each other. In order to estimate the effect of this sampling variability on the results, National Assessment calculates standard errors.

A standard error of the sample mean is a measure of the sampling variation among the means of all possible samples; it is used to estimate the precision of the mean obtained in a particular sample. The intervals from one standard error below to one standard error above a particular mean will include the average of the means in 68% of all possible samples. A particular interval computed in this way is called a two-thirds confidence interval to indicate how certain we are that the interval we constructed contains the average of all possible samples. For example, if a mean were 50.0% with a standard error of 0.5, then an approximate two-thirds confidence limit would be between 49.5 and 50.5%. A 95% confidence interval would include the interval from two standard errors above to two standard errors below the computed mean. Confidence intervals of one standard error are used throughout this report. Readers can easily compute confidence intervals of two or three standard errors if they choose to do so.

The data provide an estimate of the percentage of individuals in a given group who could respond correctly to a given question. Approximately 75,000 students participated nationally in each of the five assessments, with about 2,500 of these answering a given question.[4] Hispanic achievement in each learning area is represented by the difference between the mean percentage of the Hispanic students who responded acceptably to the questions and the mean percentage of all students at a given age who acceptably answered the questions. For example, had only five questions in social studies been given at age 9 and the percentage of acceptable responses on these questions been 70%, 60%, 50%, 40%, 30%, the mean would be 50%. Used as a summary of achievement of 9-year-olds in social studies, that number would suggest that approximately 50% of the 9-year-olds could respond correctly to a given social studies question. If the mean percentage of Hispanic 9-year-olds acceptably answering these same questions was 42%, Hispanic achievement on these items could be said to be 8 percentage points below that of all 9-year-olds.

Since the National Assessment samples from 1971 to 1975 were not specifically designed to measure Hispanic achievement, the Hispanic representation is limited to those students found in survey samples generally. The racial/cultural identification used by NAEP between 1971 and 1975 placed each student in one of five categories: white, black, Puerto Rican, Mexican-American or "other." Placement in a category was accomplished by

[4]The exact number of students varied for each age level, racial/cultural group and learning area. The exact numbers can be found in the following tables.

visual observation of the test administrator or use of the surname whenever possible. If the test administrator was unable to place a student in this way, he could talk to the student to help determine the language he or she spoke, or ask the student if he or she spoke Spanish. However, test administrators were forbidden to ask the students directly whether they were Puerto Rican, Mexican-American, Oriental, Black, etc. Since test administrators came from local areas (often substitute teachers), they were somewhat familiar with the racial/cultural make-up of the student population.

This categorization was basically an attempt to identify cultural groups. Therefore, "white" refers to whites who have been, as a group, culturally assimilated into American life. "Black" refers to African-Americans. People who have black skin but who also belong to another group (Puerto Rican, Mexican-American, etc.) were placed in that group or in "other." In other words, categorization as "Puerto Rican" or "Mexican-American" took priority over "black" and "white."

"Puerto Rican" refers to Puerto Ricans of any color; "Mexican-American" refers to Mexican-Americans of any color. It was decided that categorization of these groups could best be determined by observation, surname and language or dialect.

"Other" refers to groups not distinctly identified with the four other categories and to individuals who could not be readily placed in one of the four other categories by use of visual observation, surname, and language or dialect. Groups that commonly fell into "other" are American Indians, Japanese, Chinese, Hawaiian, Eskimo, Aleut and Asian Indians.

While National Assessment is confident that most students were properly categorized using this procedure, certain Hispanic groups such as the Cubans and Central and South American students were not specifically categorized, and it is unclear how they were counted. Since 1975, categorization of the Hispanic population has been further subdivided to include Cuban and Central and South Americans as well. This should insure better representation of students in the Hispanic category in the future and reduce some of the confusion about how the Cuban, South and Central American students were categorized.[5]

Had all the Hispanic subpopulations been categorized and identified, the data in this report would still not have represented the total Hispanic population at each age level. The sample represents only those 9-, 13- and 17-year-olds attending school. Furthermore, the sample only represents those Hispanic students that were English-speaking. While our data show that less than 1% of the students enrolled in public or private schools are categorized as non-English speaking, the quality of their English has not been measured. Until proficiency in English is carefully measured, we cannot be sure what English-speaking means. The category English-speaking might include any or all of the following groups: English monolingual, English dominant, bilingual or Spanish dominant. No distinctions for English proficiency were made.

In addition to national Hispanic results for each age level, results are reported for Hispanic students by selected subpopulations, such as region and sex. Current reporting subpopulations are shown in Table 1; the definitions of each are presented in Appendix B.

Because the National Assessment sample was not specifically designed to pick up members

[5] According to the most recent data published by the Bureau of Census (*Persons of Spanish Origin in the United States*, March 1976; U.S. Department of Commerce Series P-20, No. 302, November 1976), there were about 11 million (5.2% of the population) persons of Spanish origin in the United States in March 1976. About 6.6 million (59%) of the Hispanic population reported they were of Mexican origin, and 1.8 million (16%) reported they were of Puerto Rican origin. Persons of Cuban origin totaled about 70,000 (6%). Eight hundred thousand (7%) reported they were of Central or South American origin. About 1.3 million (12%) reported themselves as other Spanish origin.

of the Hispanic student population, all areas of the country were not adequately represented. The largest Hispanic populations in America, which live in the Northeastern and Western regions, are reflected in the NAEP data. However, certain communities, such as the large Cuban population in Florida, are not represented by this data.

TABLE 1. Hispanic Reporting Groups

Classification	Subgroup
Age level	9-year-olds in school 13-year-olds in school 17-year-olds in school
Sex	Male Female
Geographic region	Northeast West
Level of parental education	Not graduated from high school Graduated from high school

The parental-education categories represent the students' perceptions of their parent's education background; therefore, they may not be absolutely accurate.

Given these limitations, the National Assessment data nevertheless describe the achievements of various groups of students on questions that reflected consensus national-education values between 1971 and 1975. The data do not and cannot prescribe regional, state or local remedies for either majority or minority student achievement. They do not tell us whether recent curricular innovations, bilingual education programs, the desegregation of schools or court-imposed remedies have or have not been effective. National survey data are not meant to do these things. What these data can and do provide, however, is an indication, from a broad national perspective, that an equal-benefits education does not exist for all the children in this country. For whatever reasons, certain groups of students appear to benefit more from the school systems that exist in this country than other students do. The data in the following chapters consistently document that fact.

CHAPTER 2

THE FINDINGS

Summary of the Findings

National Results

When Hispanic student achievement in these five learning areas is compared to the achievement levels of all students at an age level or to only white or black students, the following patterns emerge:

- Hispanic achievement is consistently below the achievement of the total national age population and of white students.
- Hispanic achievement is often closer to national levels than black achievement. At age 9 Hispanic and black students perform at about the same level in social studies, career and occupational development (COD) and reading. At age 17 Hispanic and black students perform at about the same level in social studies and science.

Hispanic Results, Selected Groups

Regional: In general, there are no statistically significant differences between Hispanic student achievement in the Northeastern and Western regions on National Assessment science, math, COD and reading items. However in social studies, Hispanic students at all three age levels in the West tend to perform closer to national levels than Hispanic students in the Northeast. This is true at age 9 in science as well.

Male/Female: The achievement of male Hispanos was consistently closer to national levels than that of female Hispanos on the National Assessment science items. Male Hispanic achievement in social studies was closer to national levels than female achievement at ages 9 and 13 and in mathematics at ages 9 and 17. Female Hispanos at all three ages consistently performed closer to the national levels than males on NAEP reading items. In COD there were no statistically significant differences between male and female performance.

Parental Education: The data for the reported parental education of Hispanic students was totally consistent at all three age levels in all five learning areas. The achievement of Hispanic students who reported that one parent had at least graduated from high school was closer to the national level than those who reported neither parent had finished high school.

The Display of the Data

The National Assessment data on Hispanic student achievement are displayed on the following pages. Tables 2 through 4 compare the achievement levels of black, white and Hispanic students to the total national student population at ages 9, 13 and 17. The difference between the mean percentage of students nationwide answering a given question correctly and the mean percentage for each racial/ethnic group is shown in the first column. One standard error of the difference is shown in the second column. The number of students in the sample is shown in the column on the far right. In order to better represent low-income and rural areas, students in these groups were over sampled. Consequently, these counts cannot be used to calculate the proportion of students that were used to cal-

culate the achievement level of a given group. In calculating achievement data, the respondents were weighted to represent estimates of their actual proportions in the population. These proportions can be found in Appendices C and D.

TABLE 2. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 9-Year-Olds

	Percentage Points Difference From the Achievement of All 9-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
White	2.73	0.30	13,840
Black	-12.16	0.62	2,715
Hispanic	-10.59	1.03	920
Science			
White	3.12	0.25	13,982
Black	-13.36	0.58	3,265
Hispanic	-9.53	0.86	1,028
Mathematics			
White	2.76	0.24	19,051
Black	-12.38	0.54	4,473
Hispanic	-7.77	0.83	1,377
Career and Occupational Development			
White	3.23	0.26	19,936
Black	-14.21	1.18	4,179
Hispanic	-14.08	1.77	1,155
Reading*			
White	2.54	0.21	16,882
Black	-10.94	0.58	3,610
Hispanic	-10.77	1.11	855

* *See Appendix E for special analyses of the reading items at all three age levels.*

TABLE 3. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 13-Year-Olds

	Percentage Points Difference From the Achievement of All 13-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
White	2.07	0.20	20,448
Black	-12.42	0.79	3,366
Hispanic	-10.05	0.66	1,292
Science			
White	3.49	0.32	17,796
Black	-16.63	0.60	3,922
Hispanic	-11.55	0.85	1,324
Mathematics			
White	3.74	0.35	22,847
Black	-18.23	0.68	5,094
Hispanic	-11.71	1.00	1,718
Career and Occupational Development			
White	3.50	0.34	22,085
Black	-18.77	0.72	4,404
Hispanic	-12.44	1.59	1,170
Reading			
White	2.73	0.22	16,963
Black	-13.95	0.61	3,208
Hispanic	-11.25	1.38	900

TABLE 4. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 17-Year-Olds

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
White	2.39	0.21	22,690
Black	-13.56	0.56	3,464
Hispanic	-13.12	1.13	1,259
Science			
White	2.13	0.20	20,370
Black	-10.32	0.61	3,936
Hispanic	-11.08	1.08	1,105
Mathematics			
White	3.63	0.32	25,427
Black	-19.83	0.60	4,999
Hispanic	-14.36	1.02	1,376
Career and Occupational Development			
White	2.19	0.19	20,892
Black	-15.96	0.89	3,087
Hispanic	-7.65	2.08	729
Reading			
White	2.78	0.22	16,301
Black	-16.44	0.74	2,523
Hispanic	-11.42	1.54	550

Hispanic achievement is further detailed in Tables 5 through 7. Definitions of the subgroups used can be found in Appendix B.

The data presented in Tables 2 through 7 are also graphically displayed in Exhibits 1 through 18. Each bar represents the difference between a selected group and the achievement of the total age population. The smaller bars within each bar represent one standard error of that difference. Readers can use these exhibits to quickly compare differences in the achievement levels of the various groups and the statistical significance of these differences.

EXHIBIT 1. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 9-Year-Olds

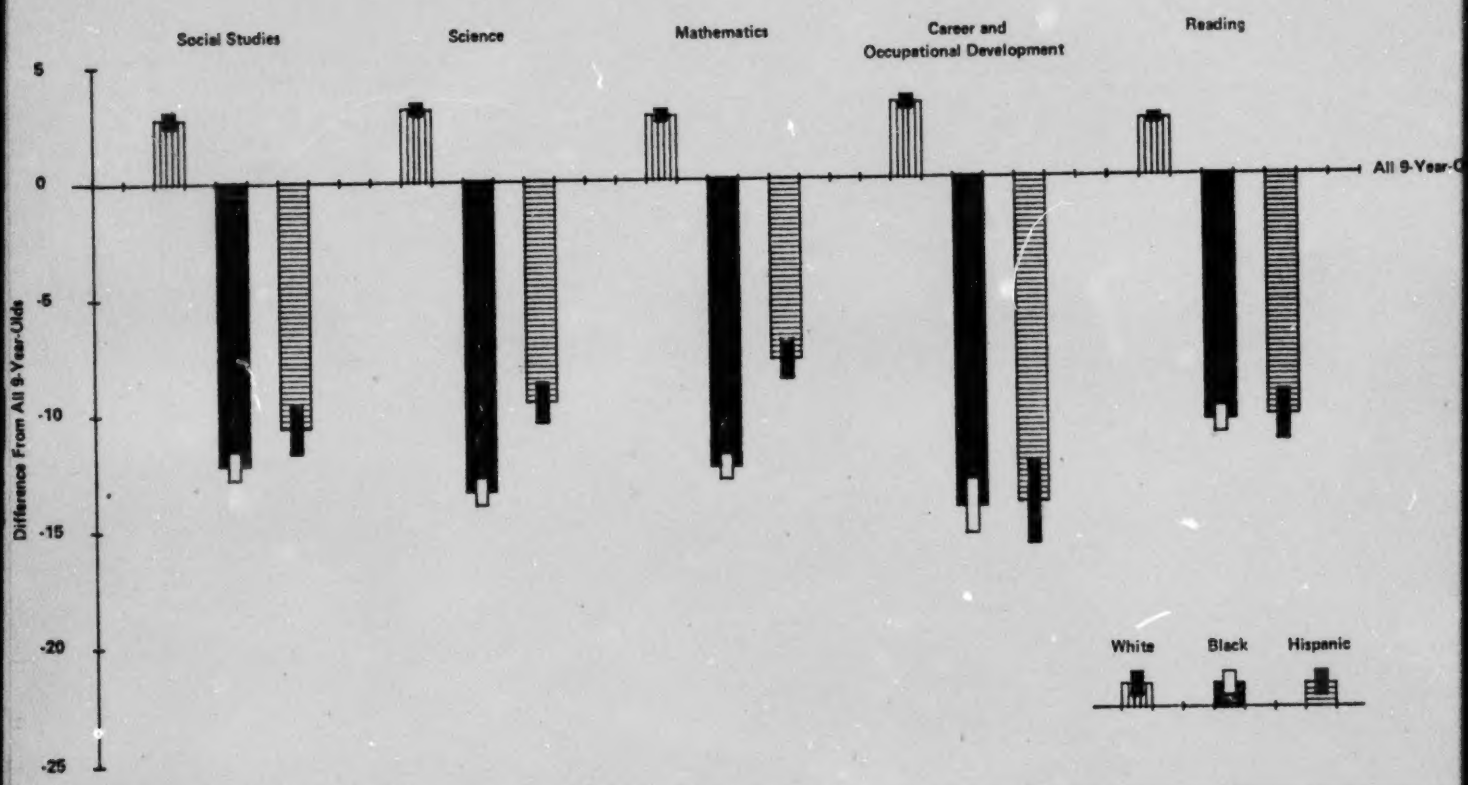


EXHIBIT 2. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 13-Year-Olds

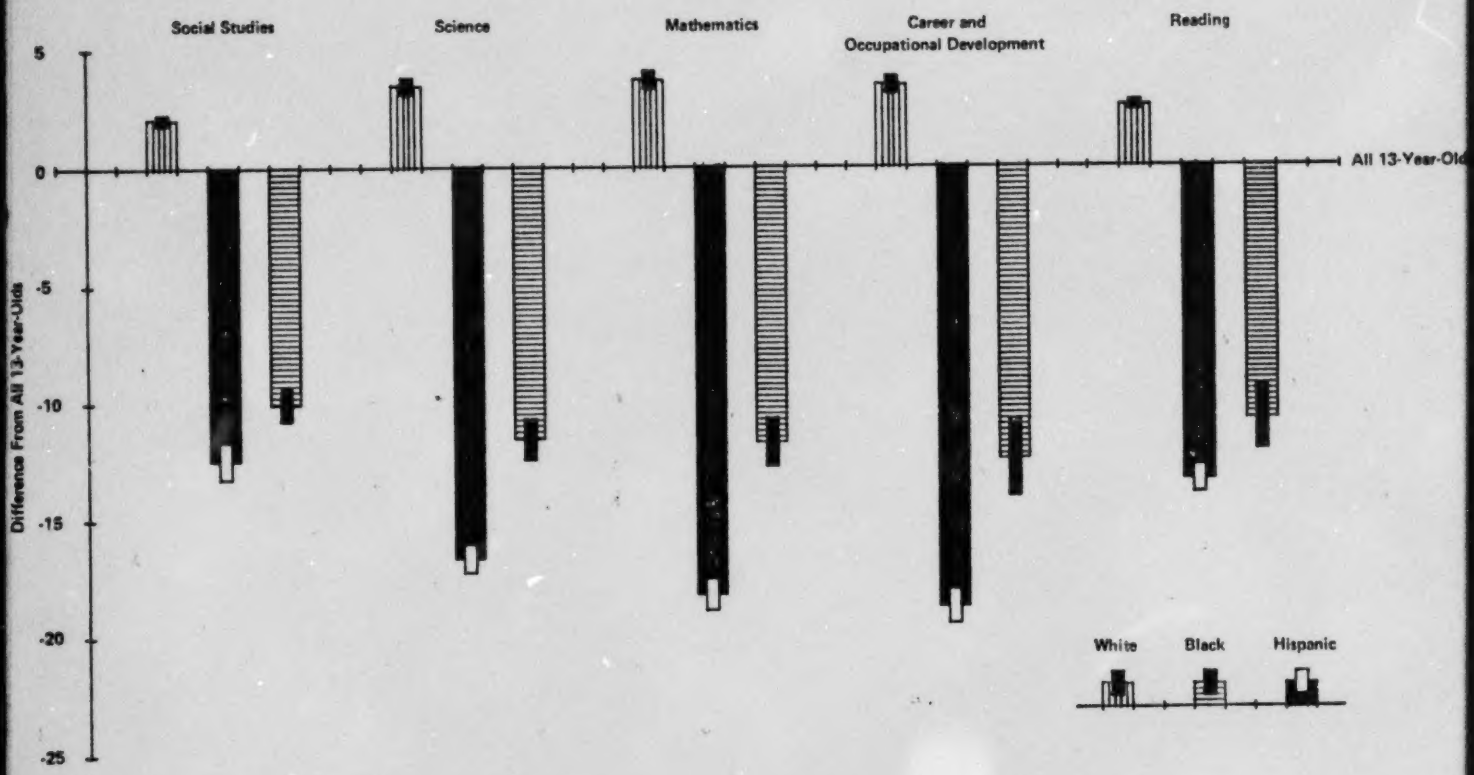


EXHIBIT 3. The Difference Between Selected Racial/Ethnic Group Achievement and the Achievement of All 17-Year-Olds

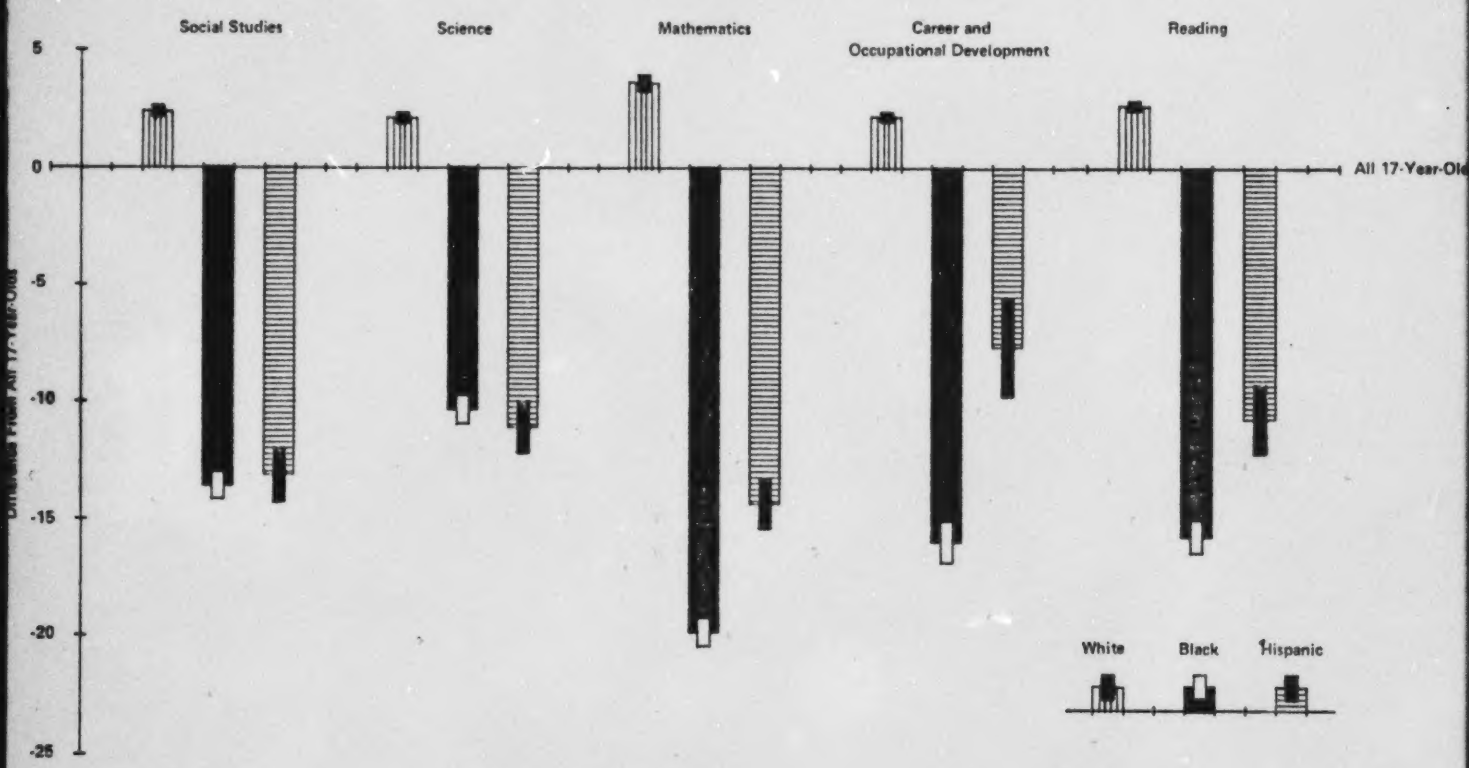
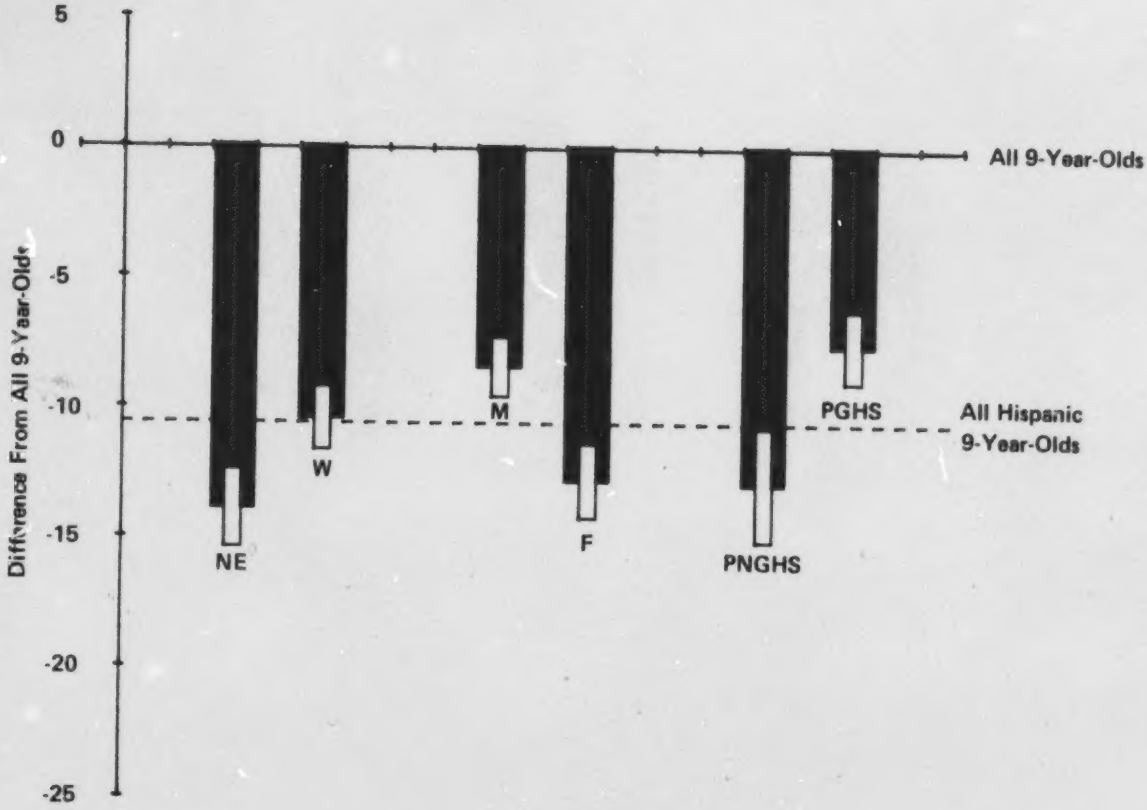


TABLE 5. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Five Learning Areas*

	Percentage Points Difference From the Achievement of All 9-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All Hispanic 9-year-olds	-10.59	1.03	920
Northeast	-13.88	1.49	174
West	-10.39	1.21	730
Male	-8.41	1.14	443
Female	-12.78	1.43	477
Parents not graduates of high school	-12.91	2.19	191
Parents graduates of high school	-7.58	1.38	307
Science			
All Hispanic 9-year-olds	-9.53	0.86	1,028
Northeast	-12.50	1.10	199
West	-8.81	1.16	730
Male	-7.92	1.18	504
Female	-11.14	1.02	524
Parents not graduates of high school	-11.28	1.61	206
Parents graduates of high school	-6.03	1.35	341
Mathematics			
All Hispanic 9-year-olds	-7.77	0.83	1,377
Northeast	-6.20	1.21	269
West	-8.41	1.00	970
Male	-6.01	1.15	666
Female	-9.43	0.78	711
Parents not graduates of high school	-10.58	1.59	279
Parents graduates of high school	-4.04	1.37	482
Career and Occupational Development			
All Hispanic 9-year-olds	-14.08	1.77	1,155
Northeast	-15.57	2.58	242
West	-14.29	2.24	807
Male	-13.72	2.64	595
Female	-14.35	1.63	560
Parents not graduates of high school	-15.12	2.10	225
Parents graduates of high school	-8.24	2.23	396
Reading			
All Hispanic 9-year-olds	-10.77	1.11	855
Northeast	-13.12	2.81	172
West	-10.19	1.31	620
Male	-12.79	1.31	433
Female	-8.74	1.15	422
Parents not graduates of high school	-13.06	1.88	162
Parents graduates of high school	-8.51	1.19	364

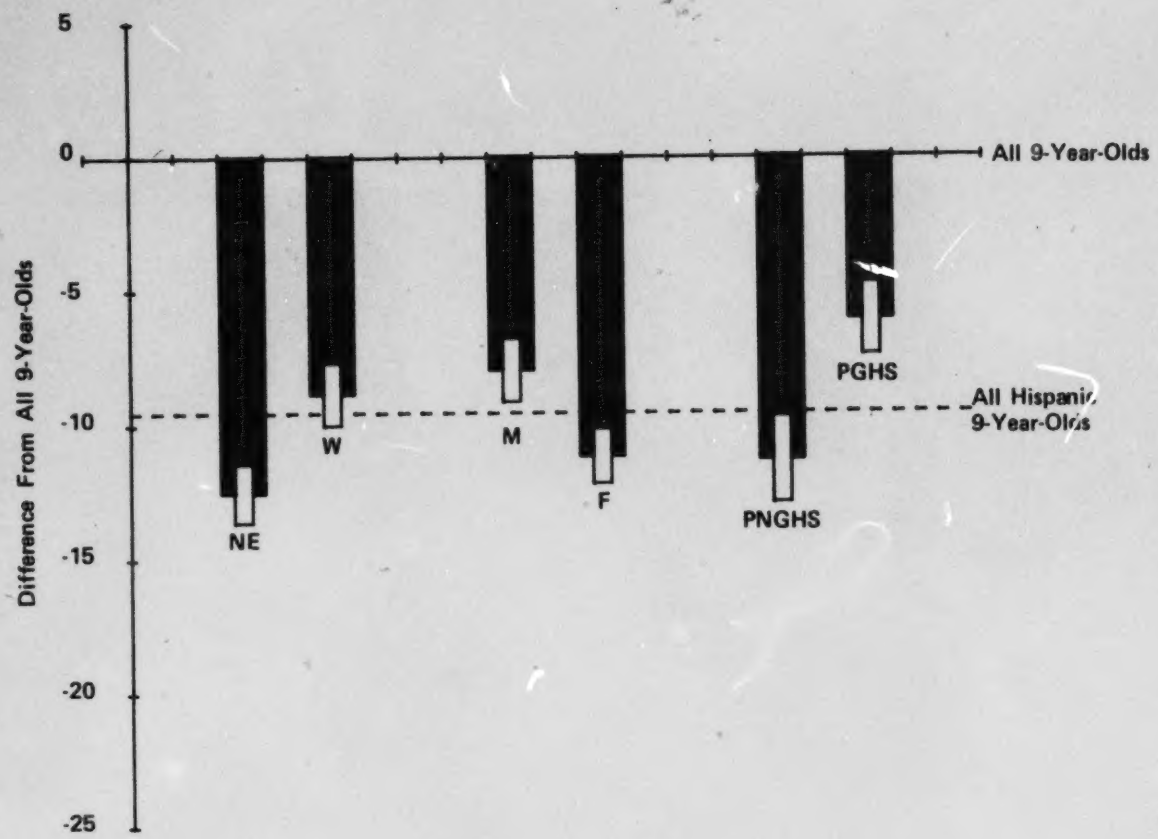
* *See Appendices F and G for the differences between white and black group achievement and the achievement of all 9-year-olds in these five learning areas.*

EXHIBIT 4. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Social Studies



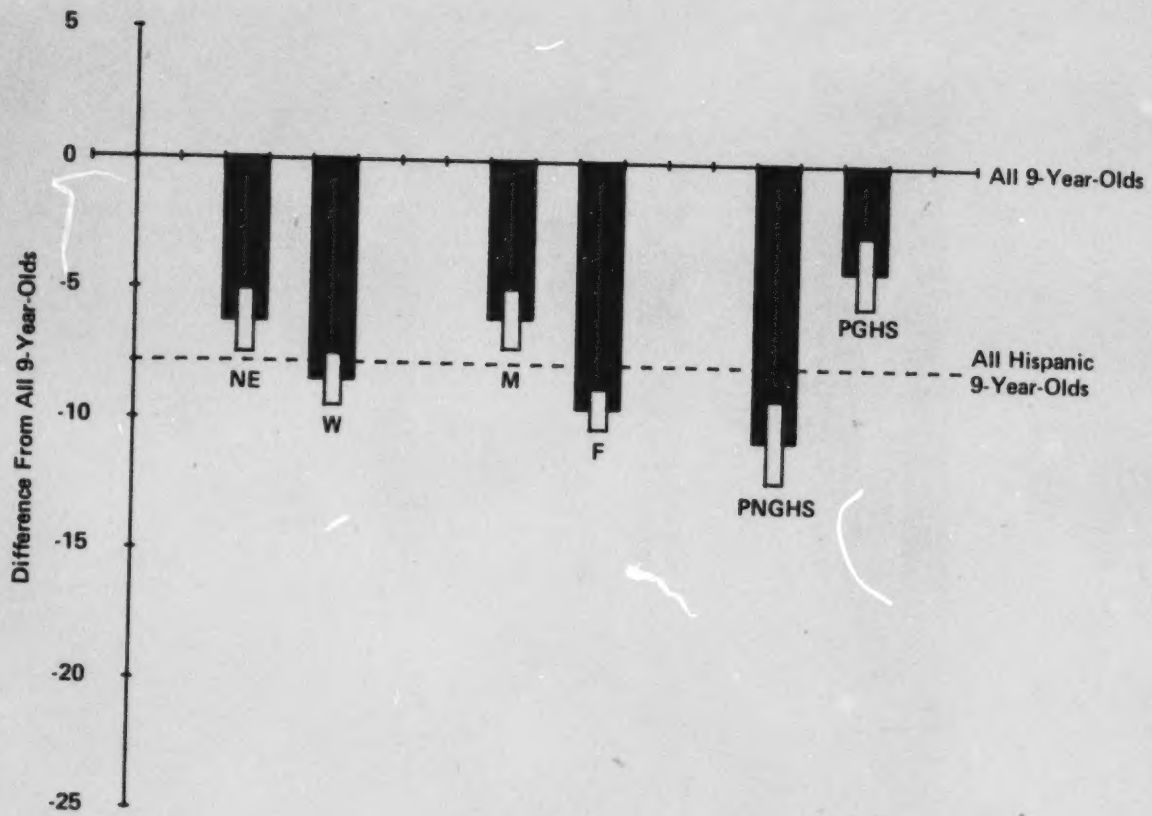
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 5. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Science



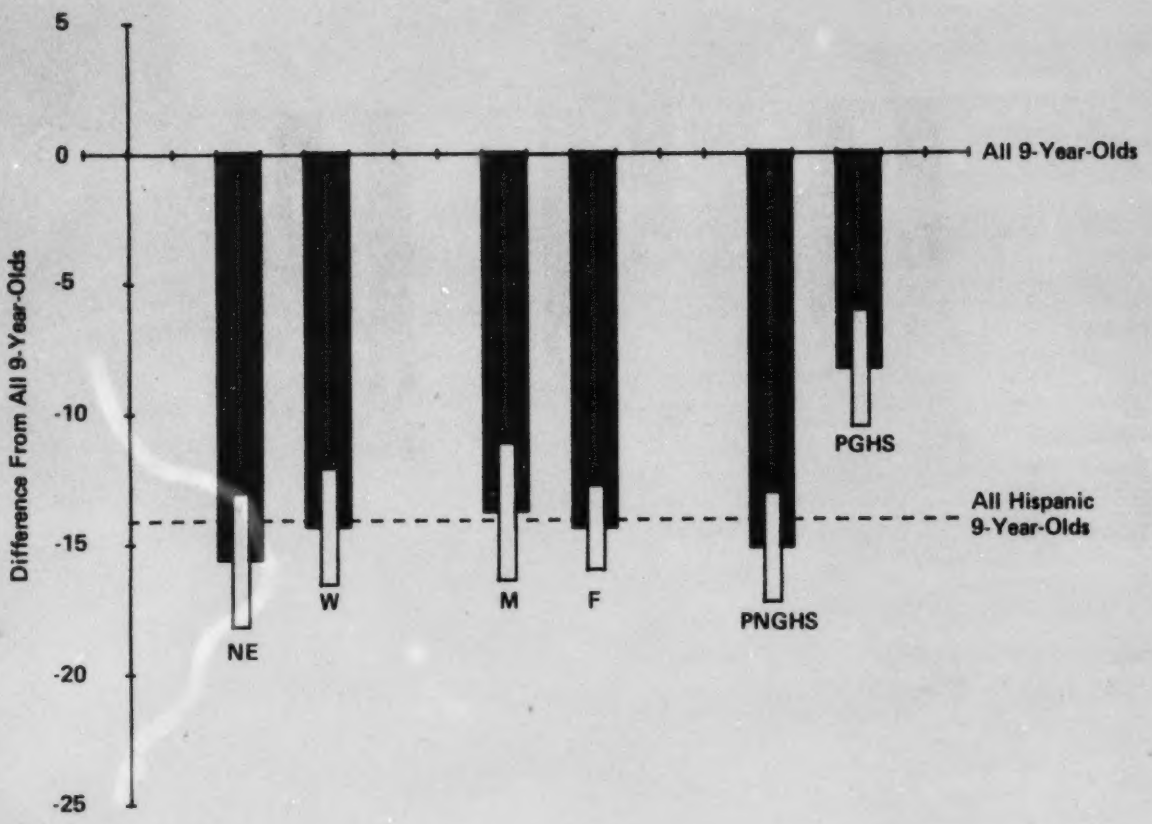
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 6. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Mathematics



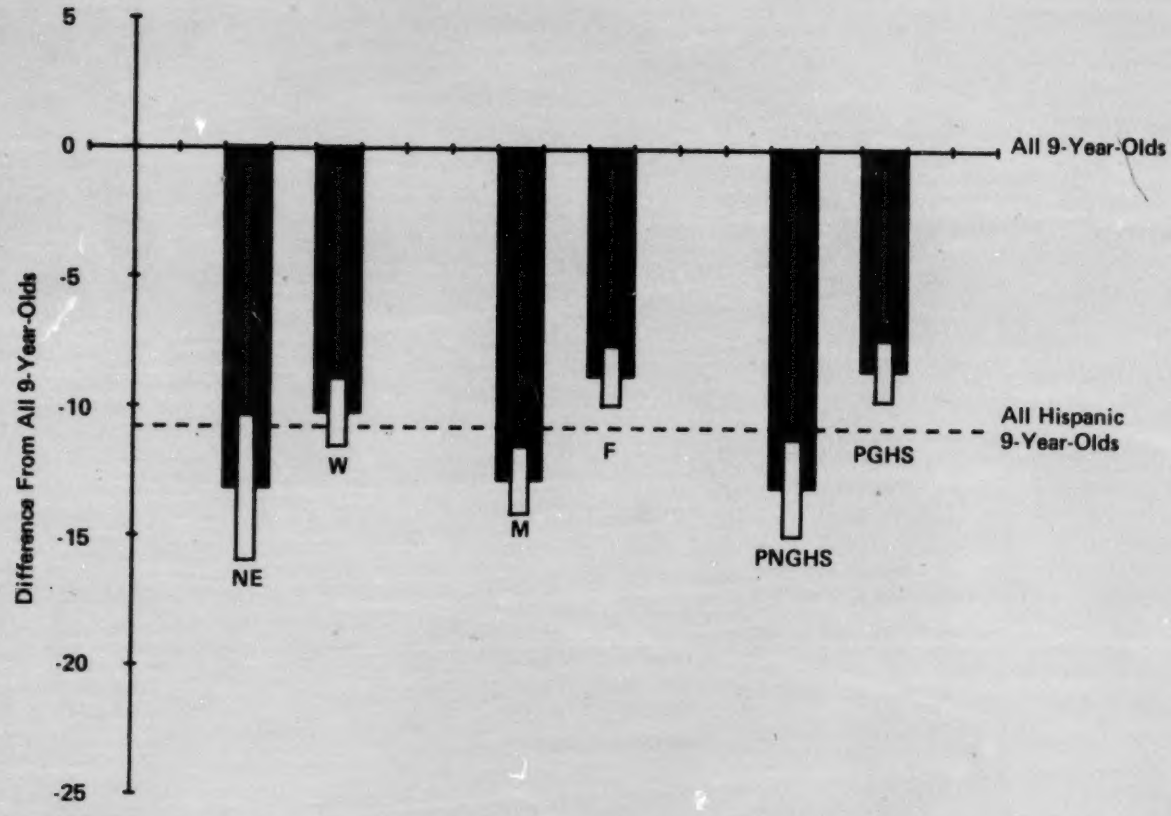
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS=Parents graduates of high school

EXHIBIT 7. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Career and Occupational Development



NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 8. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 9-Year-Olds in Reading

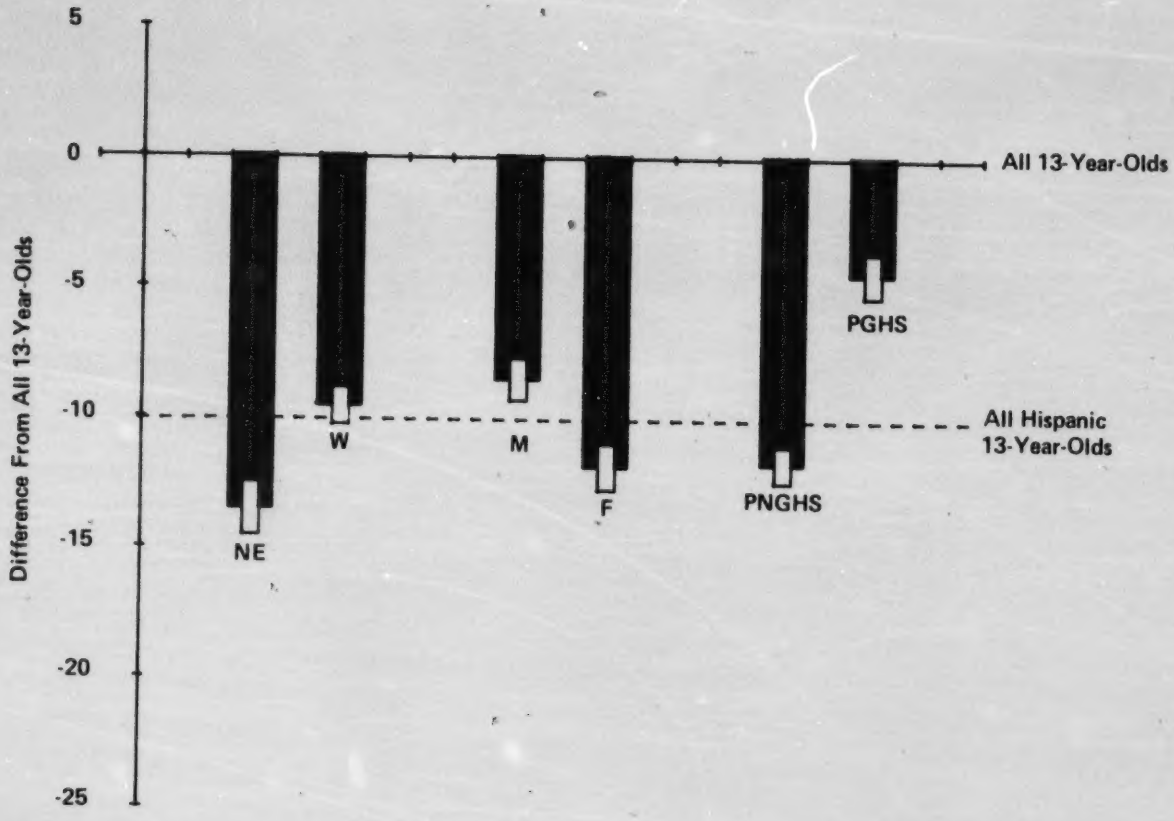


NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

TABLE 6. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Five Learning Areas

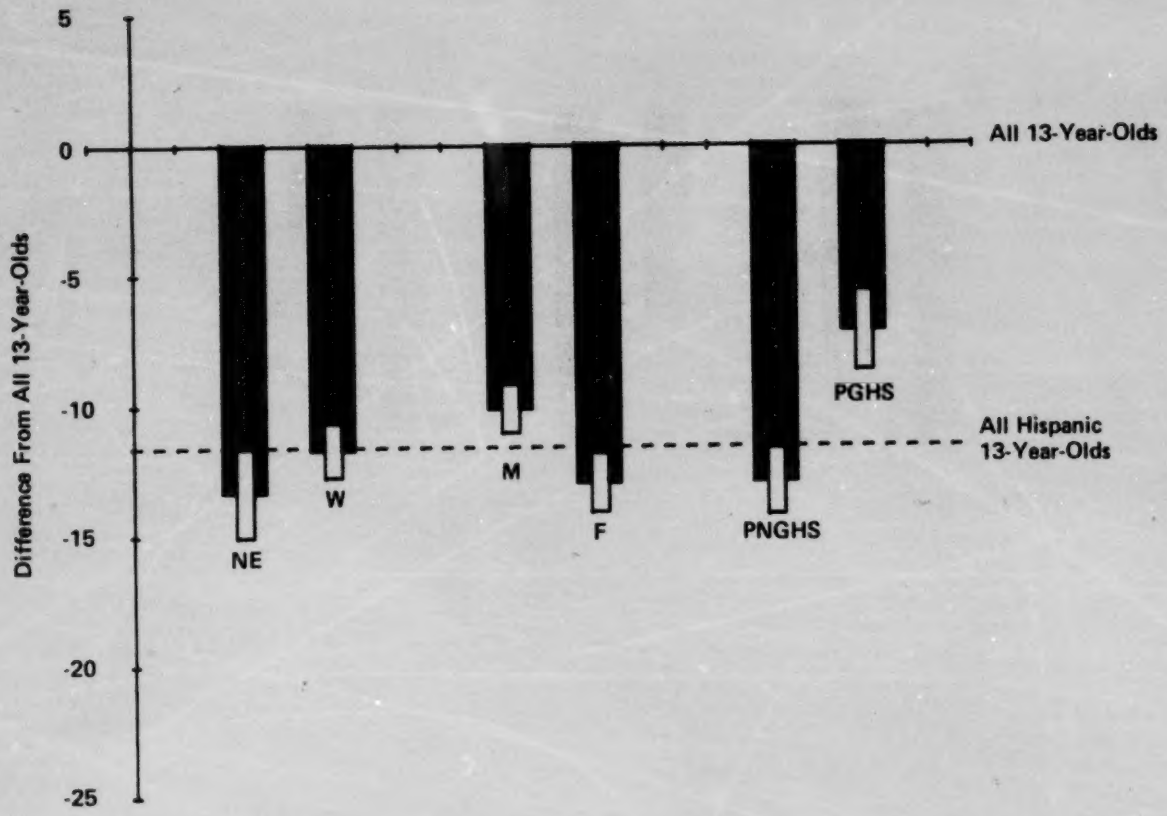
	Percentage Points Difference From the Achievement of All 13-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All Hispanic 13-year-olds	-10.05	0.66	1,292
Northeast	-13.48	1.02	244
West	-9.52	0.71	991
Male	-8.48	0.81	670
Female	-11.82	0.89	622
Parents not graduates of high school	-11.70	0.71	449
Parents graduates of high school	-4.43	0.84	393
Science			
All Hispanic 13-year-olds	-11.55	0.85	1,324
Northeast	-13.29	1.71	276
West	-11.65	1.05	919
Male	-10.06	0.92	627
Female	-12.92	1.13	697
Parents not graduates of high school	-12.88	1.27	437
Parents graduates of high school	-7.08	1.53	475
Mathematics			
All Hispanic 13-year-olds	-11.71	1.00	1,718
Northeast	-10.87	2.05	355
West	-12.61	1.13	1,194
Male	-10.56	1.19	822
Female	-12.81	1.26	896
Parents not graduates of high school	-12.12	1.15	628
Parents graduates of high school	-8.01	1.35	622
Career and Occupational Development			
All Hispanic 13-year-olds	-12.44	1.59	1,170
Northeast	-13.60	2.41	196
West	-12.54	2.06	818
Male	-13.12	2.18	588
Female	-11.10	1.92	582
Parents not graduates of high school	-13.81	2.54	376
Parents graduates of high school	-7.21	1.74	460
Reading			
All Hispanic 9-year-olds	-11.25	1.38	900
Northeast	-13.96	2.95	169
West	-11.00	1.65	673
Male	-13.24	1.57	455
Female	-8.89	1.49	445
Parents not graduates of high school	-13.55	1.74	297
Parents graduates of high school	-5.56	1.23	330

EXHIBIT 9. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Social Studies



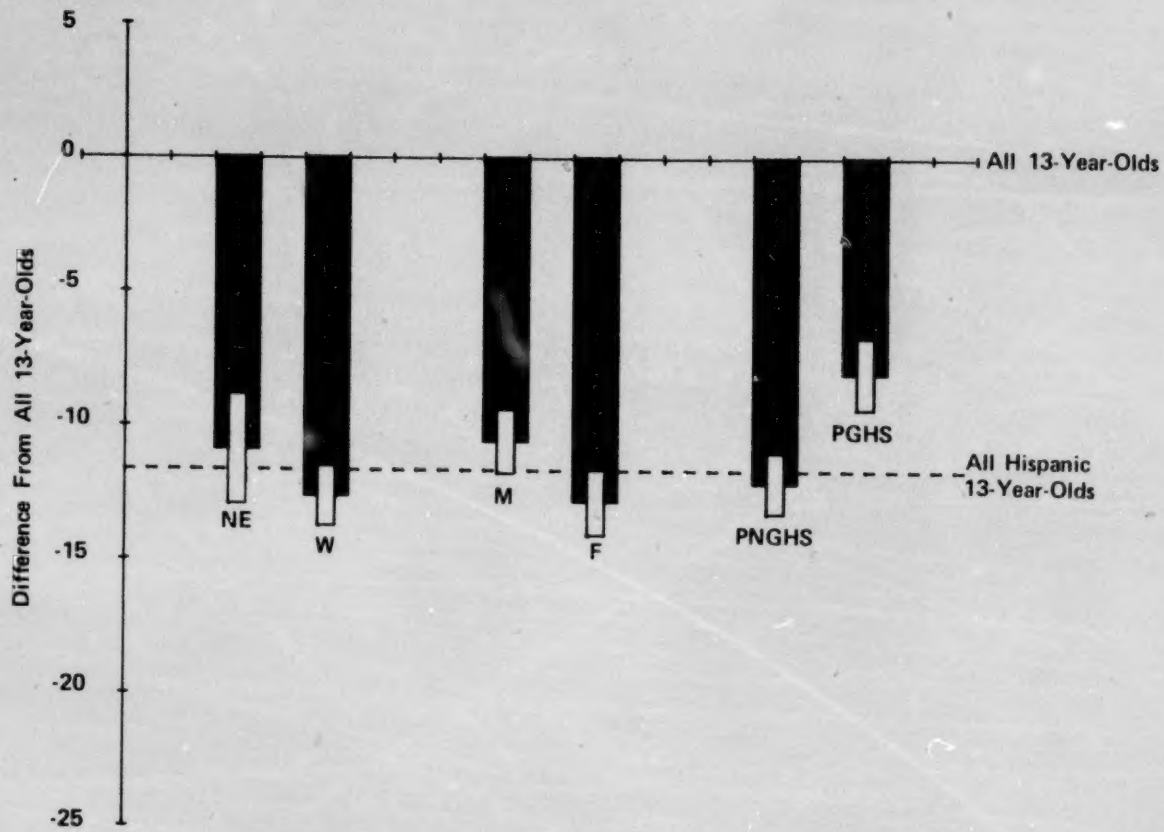
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 10. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Science



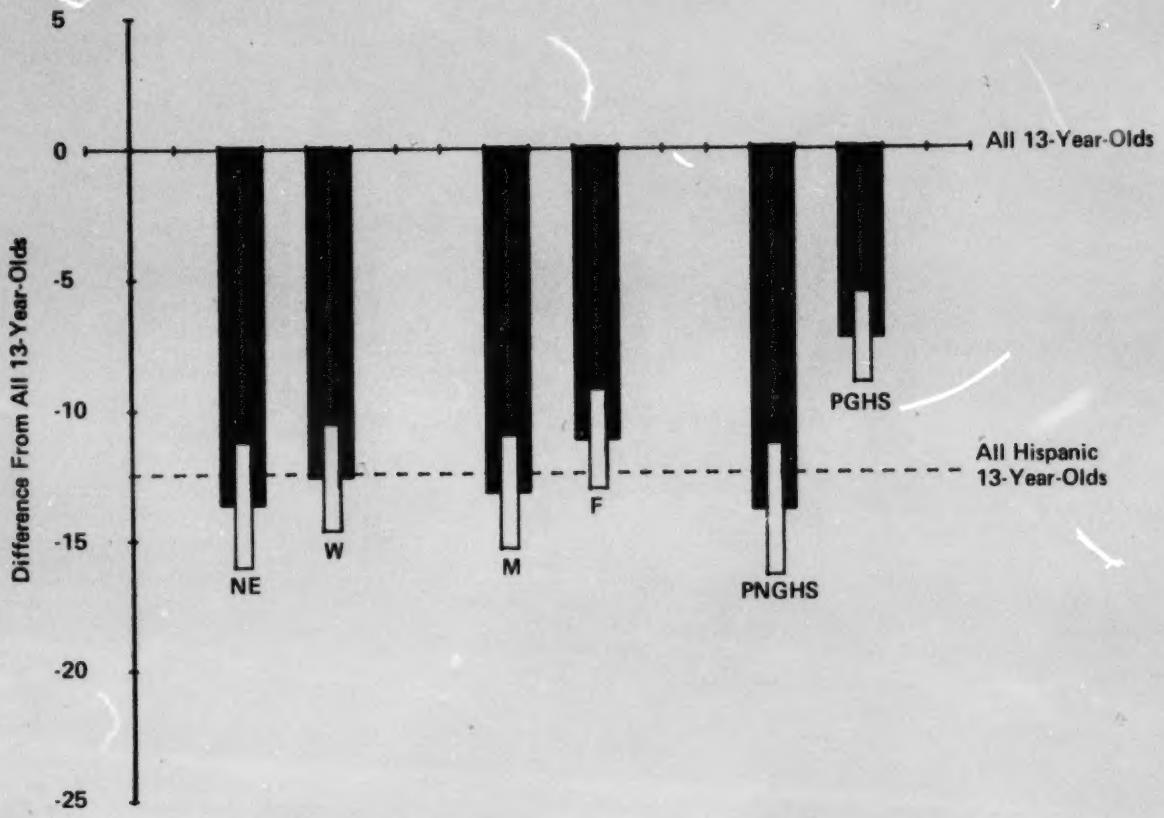
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 11. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Mathematics



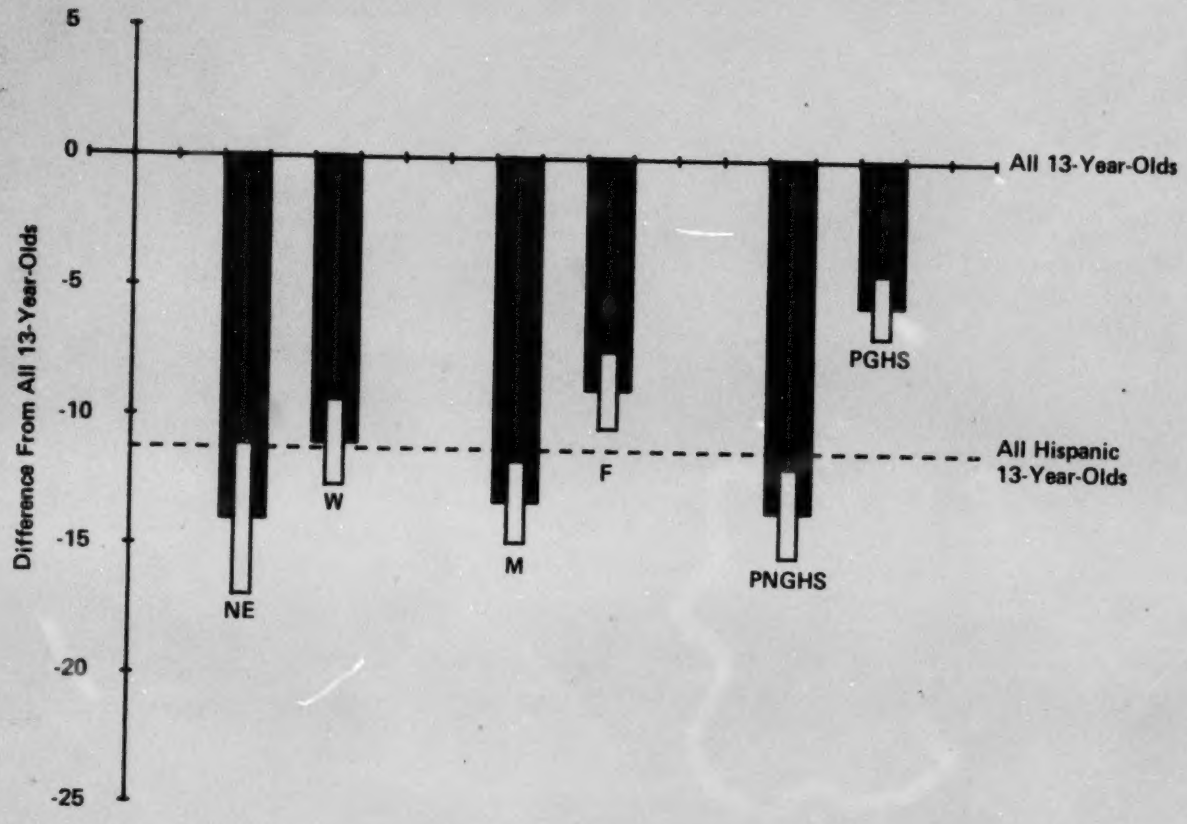
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 12. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Career and Occupational Development



W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 13. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 13-Year-Olds in Reading

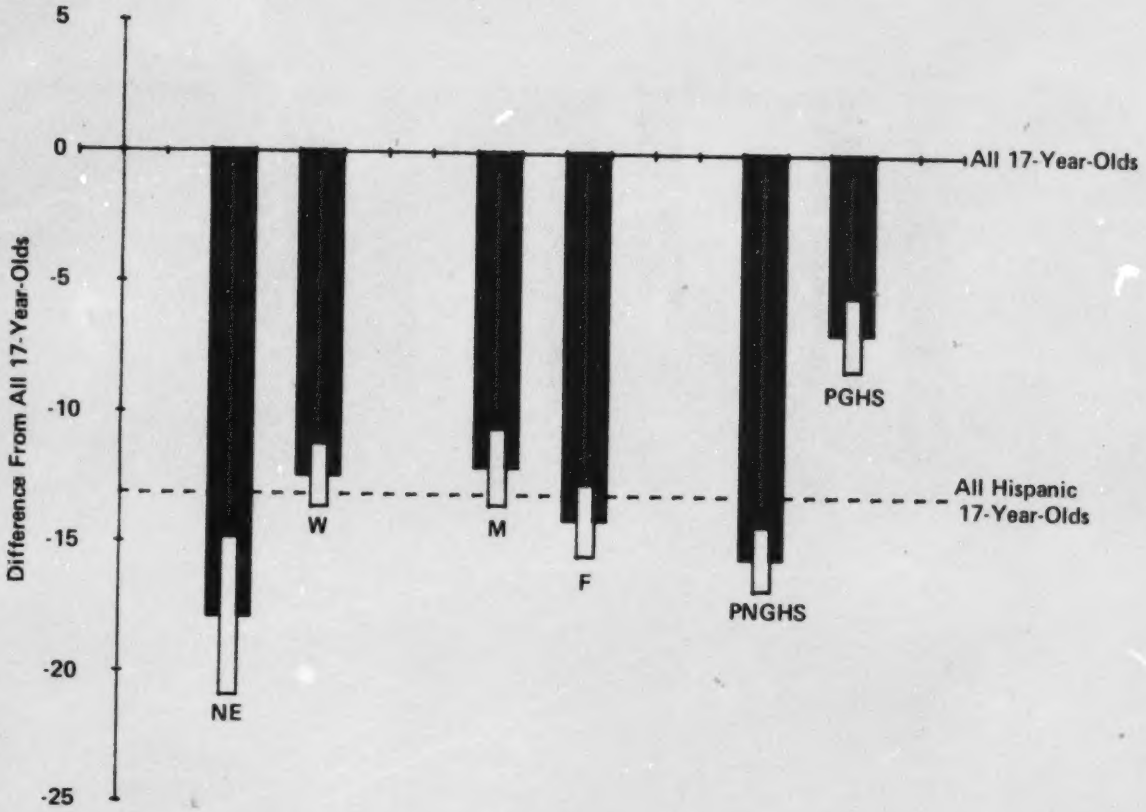


NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

TABLE 7. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Five Learning Areas

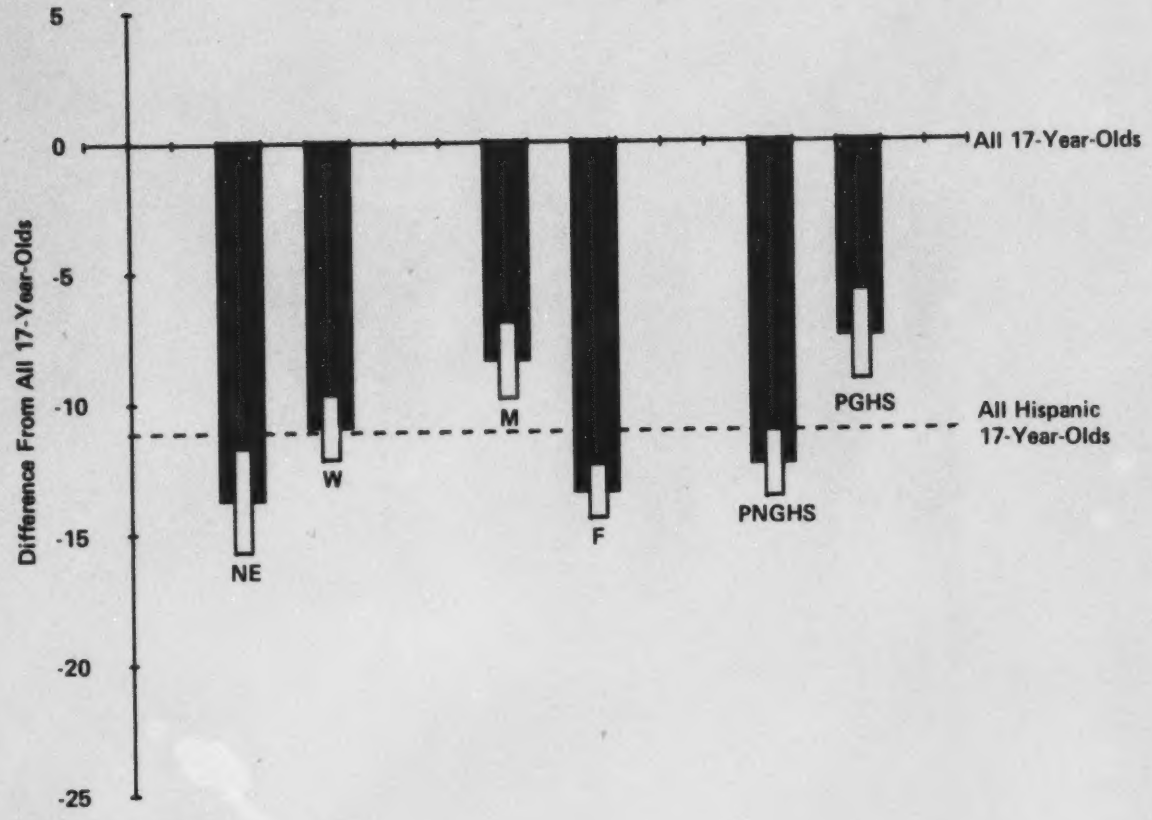
	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All Hispanic 17-year-olds	-13.12	1.13	1,259
Northeast	-17.84	3.04	228
West	-12.38	1.22	963
Male	-12.03	1.48	587
Female	-14.06	1.38	672
Parents not graduates of high school	-15.47	1.24	604
Parents graduates of high school	-6.81	1.42	403
Science			
All Hispanic 17-year-olds	-11.08	1.08	1,105
Northeast	-13.67	2.02	170
West	-10.87	1.25	839
Male	-8.32	1.47	501
Female	-13.40	1.03	604
Parents not graduates of high school	-12.36	1.30	536
Parents graduates of high school	-7.42	1.72	362
Mathematics			
All Hispanic 17-year-olds	-14.36	1.02	1,376
Northeast	-17.20	2.13	214
West	-14.30	1.22	1,033
Male	-10.67	1.60	634
Female	-17.94	0.75	742
Parents not graduates of high school	-15.52	1.56	668
Parents graduates of high school	-8.66	1.54	449
Career and Occupational Development			
All Hispanic 17-year-olds	-7.65	2.08	729
Northeast	-12.21	8.76	98
West	-6.84	1.86	512
Male	-9.17	2.79	372
Female	-5.67	2.35	357
Parents not graduates of high school	-10.26	2.71	356
Parents graduates of high school	-2.80	2.15	311
Reading			
All Hispanic 17-year-olds	-11.42	1.54	550
Northeast	-11.75	4.26	103
West	-11.06	1.79	409
Male	-13.39	1.70	283
Female	-9.20	1.65	267
Parents not graduates of high school	-12.86	1.38	264
Parents graduates of high school	-6.91	1.89	228

EXHIBIT 14. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Social Studies



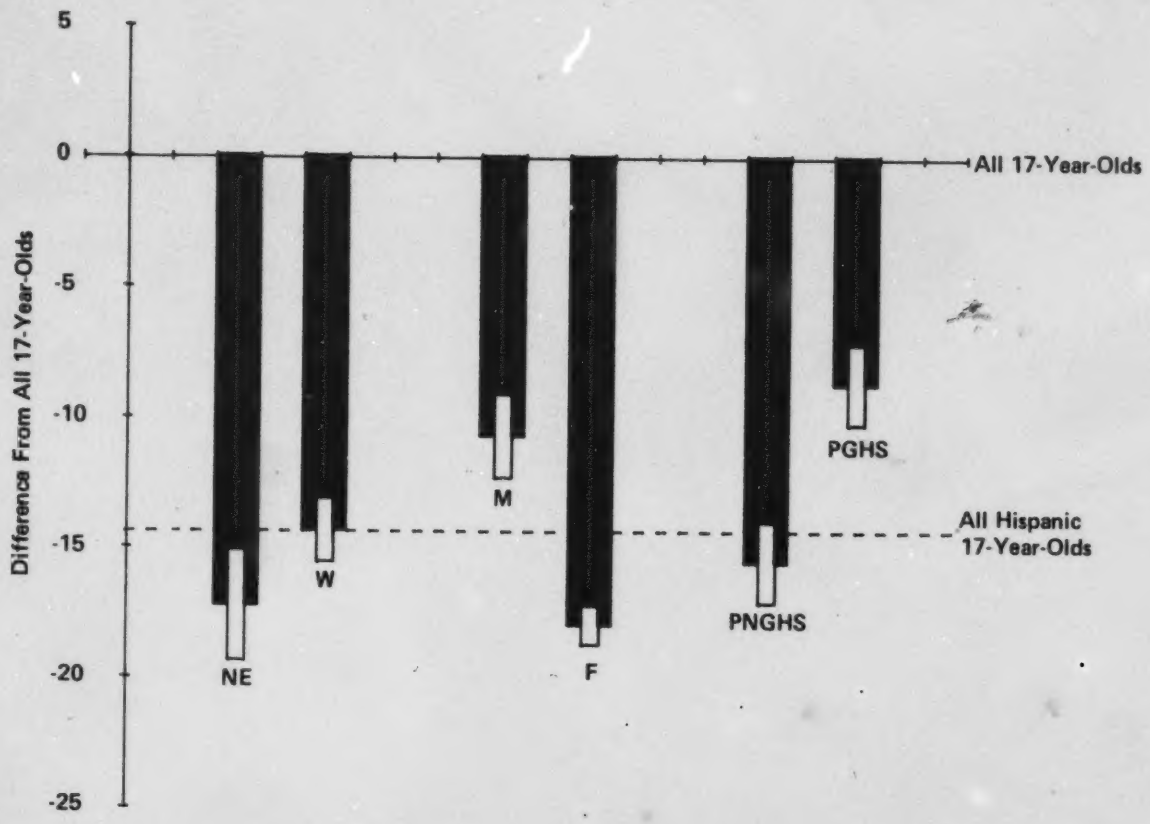
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 15. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Science



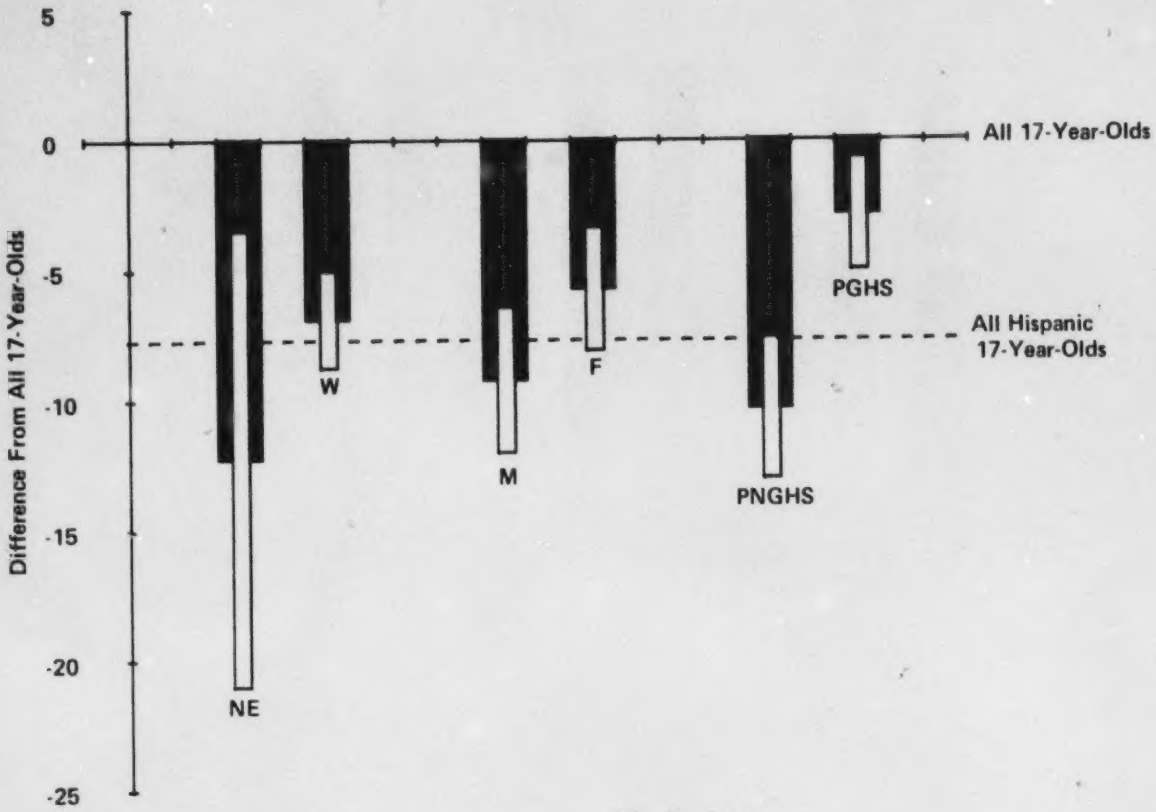
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 16. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Mathematics



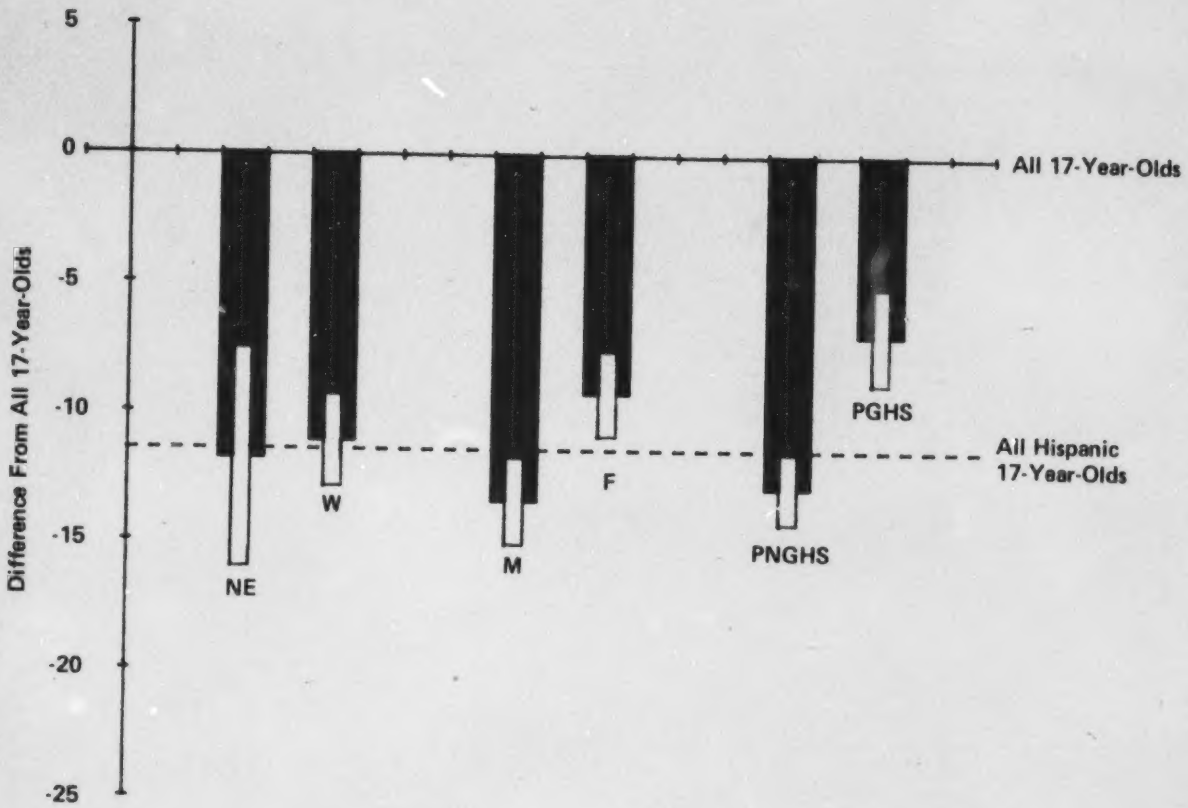
NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 17. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Career and Occupational Development



NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

EXHIBIT 18. The Difference Between Selected Hispanic Group Achievement and the Achievement of All 17-Year-Olds (In School) in Reading



NE= Northeast
W= West
M= Male
F= Female
PNGHS= Parents not graduates of high school
PGHS= Parents graduates of high school

CHAPTER 3

A COMMENTARY ON THESE DATA[1]

Perhaps the one word that best describes the data in this report is "consistent." We are struck by the remarkably consistent pattern of achievement found by National Assessment over a four-year period and in five different learning areas. Anyone who has looked at these data even cursorily cannot help but notice the tremendous disparity between the achievement levels of the Hispanic and the Anglo student populations. Over and over again the differences in achievement are apparent at all three ages: Hispanos are 10, 12, 14 and more points below the national levels in reading, math, science, career and occupational development (COD) and social studies. This is even more alarming when you realize that nationally the percentages of success are only at about the 50-60% level. If you believe as we do that all children can learn, the data strongly suggest that Hispanic students do not receive equal benefits from the education system of this country. The mere availability of public education is simply not enough.

This report points out serious problems in our education system that we, as a nation, have simply not confronted:

1. Our education system has been based on the myth that America is a homogeneous nation — a melting pot of races, colors and creeds. These data suggest that at least for Hispanic children, the theory does not work. The data reflect the pluralistic nature of our society. Hispanic students do have different needs, and these needs have not been addressed.

2. The data raise questions about the effectiveness of school systems as they presently exist to meet the needs of minority students. According to the National Assessment data, the deficits in achievement for Hispanos have not changed in the last six years. Hispanic students appear no closer to equal benefits in 1975 than they were in 1971.

While the National Assessment information points to important areas of concern and raises serious questions, it can also be easily misused in spite of the fact that NAEP has been very careful to spell out its limitations. We are especially concerned that some people may suggest that these data show that schools are incapable of dealing with the educational inequalities of minority students, or that the monies spent on education have served no useful purpose, or that schools should be absolved of the responsibility for dealing with minority problems. Our greatest con-

[1]This commentary is authored by Jose Martinez and Shirley Munoz-Hernandez and was developed as a suggestion of the Conference on Hispanic Student Achievement, November 13-14, 1976 (see Appendix H for further details on the conference and participants). Dr. Martinez is presently the bilingual program evaluator for the California State Department of Education. He has been a professor of education at California State University (Long Beach), served for three years as a consultant to the Ministry of Education in Santo Domingo and as a member on the editorial committee of ASCD. He is past editor of the California Association for the Mentally Gifted. He has also authored numerous publications on the evaluation of bilingual education. Ms. Munoz-Hernandez is a senior research associate at the Bilingual General Assistance Center at Columbia University, completing her Ed.D. in Curriculum and Teaching there. Her areas of expertise include bilingual-needs assessment and program evaluation as well as the design of equal-benefit curriculum for non-English dominant students.

cern is that some may link the low achievement of Hispanic students specifically to the failure of bilingual education programs. The data do not support these contentions, since, as National Assessment has clearly pointed out, no data was collected about bilingual programs.

We recognize the limitations of statistical studies and that the National Assessment surveys cannot answer the many questions we have about the educational achievement of Hispanic children. Nevertheless, the NAEP data are important because they set a baseline measure that we can use to measure future achievement against our societal values. They lead us to question the types of information we gather, the consensus process of education that plays down differences and the crucial issue of what, in fact, children should and do learn. In addition, like all good research studies, this one raises at least as many questions as it answers. Several research needs that come to mind are:

1. Specific studies need to be carried out on ways to use the instructional process more efficiently in meeting the needs of Hispanic students. The system should be examined from the university level, where teacher training takes place, down through the district and to the individual classroom.
2. The content and materials used in the various subject areas need to be carefully reexamined. The consensus of what a curriculum should be has not changed much in the past two decades. New approaches must be found to meet the needs of minority students that apparently are not presently being met.
3. Future assessments of Hispanic students should also include longitudinal studies of specific subpopulations as well as cross-sectional studies like National Assessment, clear evaluations of the level of English language proficiency among the students and clear criteria upon which to judge student performance levels.

Our personal experiences as Hispanic educators show us that Hispanic children can and do learn when their needs are met. The National Assessment data show us that their needs are met all too rarely. We endorse NAEP for calling this to the public attention. No other national-level data on Hispanic achievement even exists. This fact in itself makes the National Assessment effort significant. We hope the report will bring the issues to the attention of the nation and that it receives wide discussion.

APPENDIX A

METHODS[1]

Development and Review of Objectives

Objectives developed in each learning area[2] (math, science, social studies, career and occupational development [COD] and reading) had to satisfy a cross-section of subject-matter specialists and educators. Acceptance and approval of each set of objectives as an important set of education goals was also elicited from concerned citizens. Whenever National Assessment has employed consultants for review conferences and approval of materials, attempts have been made to insure representation from all regions of the country, participation of members of minority groups and participation of both males and females.

In addition, National Assessment selected subject-matter specialists and educators representing different specialities within each discipline; different organizations and projects associated with the learning area or discipline; and both elementary and secondary levels of public, private and parochial school people (classroom teachers, curriculum specialists, administrators). Further selection requirements for concerned citizens included representation from different types of communities, diverse national organizations and different occupations.

Objectives development took approximately one year to accomplish for each learning area.

Contractors and consultants conducted a literature search within each area to document curriculum trends, existing sets of education objectives and general content organizations. Then, subject-matter specialists participated in a series of development and review conferences that yielded a first draft of objectives. Further reviews, including a review by knowledgeable, concerned citizens were conducted. Once the objectives were revised and approved, the final draft was again reviewed and approved by another group of subject-matter experts. The new consensus objectives were adopted by National Assessment.

Preparation and Tryouts of the Questions

Based on the objectives for each learning area, National Assessment developed specifications for the number, character and quality of the questions to be developed. Special emphasis was given to writer qualifications, documentation, difficulty levels and usefulness at more than one age level. The writers had to be subject-matter experts with experience in the education of 9-year-olds, 13-year-olds, 17-year-olds or adults in the particular learning area. Documentation had to include a rationale; administration, scoring and reporting directions; scoring keys or scoring categories; sample responses; and all special stimuli.

The questions were developed with difficulty levels ranging from an expected response rate of over 75% correct responses to an expected rate of less than 25% correct responses. This requirement was made because National Assessment must be able to describe a broad range of educational attainments achieved by the groups of people in the target populations.

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[1] The methods described in this section are the procedures followed between 1971 and 1975. A number of important changes in these procedures have been made in the last few years; however, they are not reflected in the data presented in this report.

[2] Objectives development and review in specific learning areas are described in the objectives booklets for those areas.

As part of the exercise-preparation process, exercise developers conducted small-scale, local tryouts for each question they submitted to the project. These tryouts served two functions.

1. They furnished information about exercise clarity and administrative feasibility.

2. They provided sample responses for open-ended items that the contractor used to develop initial scoring guides.

Exercise Review and Revision

Newly developed exercises were reviewed by the National Assessment staff and the Exercise Development Advisory Group, which has a rotating membership comprised of five education-measurement specialists. Subject-matter specialists criticized each exercise with respect to whether it was a direct, clear measure of an objective for the learning area, whether it was relevant to current educational practices and opinions, and whether it contained accurate scoring and reporting guides.

Groups of informed and concerned citizens reviewed each exercise with respect to whether it was an appropriate measure of an objective for a given age, whether it might be offensive to any particular group of people and whether it was a relevant exercise in terms of what they considered to be valuable learning experiences. Criticisms and suggestions were transmitted to the exercise development contractor, who then reviewed all the data, suggestions and criticisms and revised the exercises accordingly.

Field Testing, Scoring and Review of the Results

Following review and revision, the items were given a national tryout. Tryout respondents were selected to give representation to the reporting categories: region of the country, size and type of community, socioeconomic levels, race and sex. The tryouts served three purposes.

1. To check administrative feasibilities.

2. To provide data for improvement of scoring guides.

3. To provide data necessary for evaluating exercises in order to select those that would be used in the assessment.

Subject-matter specialists carefully reviewed all response data from all exercises. Each scoring guide or exercise was checked for subject-matter accuracy, appropriateness for the age level and biases with respect to any particular group of people. These exercises were also reviewed by NAEP staff members and the Exercise Development Advisory Group. They considered each exercise in light of potential administration, scoring and reporting difficulties, as well as general measurement characteristics. These considerations, taken together with the subject-matter specialists' recommendations, determined the exercises suitable for use in the assessment.

Final Exercise Review and Selection

The pool of suitable exercises had to be narrowed to the number that could actually be used in the assessment. Therefore, the exercises were again reviewed by subject-matter specialists and selected on the basis of exercise quality, importance, difficulty and coverage of desired objectives. For the purpose of this report, only those questions that measured cognitive skills and knowledges were analyzed and summarized. The number of questions or parts of questions used to summarize achievement in each of the five learning areas is shown in Table A-1.

Although it is difficult to represent the questions that were used in the analyses found in this report by only showing a few examples, the following examples do provide some indication of the materials that are represented in the data.

TABLE A-1. Hispanic Achievement Data – The Number of Exercises Used in Summary Measures

Learning Area	Number of Exercises
Social Studies	
Age 9	88
Age 13	110
Age 17	115
Science	
Age 9	91
Age 13	66
Age 17	59
Mathematics	
Age 9	168
Age 13	217
Age 17	251
Career and Occupational Development	
Age 9	35
Age 13	69
Age 17	71
Reading	
Age 9	37
Age 13	85
Age 17	85

Social Studies

Social studies is an area of the school curriculum that seeks to communicate about man in society. The area includes history, political science, economics, geography, sociology, psychology, anthropology and philosophy as well as influences of literature, art, music, religion and science. In actual school classrooms, however, the subject matter is frequently restricted. In some instances, social studies classes integrate or combine two or more subjects with or without an emphasis on contemporary problems; but often in grades 5 through 12, social studies tends to be simply a history, geography, government or economics course with materials adapted to the appropriate grade level.

Given such a wide range of subject matter and variety of teaching practices, the groups charged with compiling national objectives for social studies correspondingly arrived at general goals for education in the area.

Hispanic achievement data in social studies are based upon questions reflecting four broad objectives:

1. Have curiosity about human affairs.
2. Use analytic/scientific procedures effectively.
3. Be sensitive to creative/intuitive methods of explaining the human condition.
4. Have knowledge relevant to the major ideas and concerns of social scientists.

Table A-2 shows the number of questions found within each objective at each age level.

TABLE A-2. Hispanic Achievement Summary Data – The Number of Questions Within Each Social Studies Objective

Objective I. Have curiosity about human affairs

Age 9	7 Questions
Age 13	8 Questions
Age 17	4 Questions

Objective II. Use analytic/scientific procedures effectively

Age 9	31 Questions
Age 13	26 Questions
Age 17	19 Questions

Objective III. Are sensitive to creative/intuitive methods of explaining the human condition

Age 9	6 Questions
Age 13	12 Questions
Age 17	12 Questions

Objective IV. Have knowledge relevant to the major ideas and concerns of social scientists

Age 9	44 Questions
Age 13	64 Questions
Age 17	79 Questions

Table A-2 illustrates that the emphases of the questions at each age level were on knowledges (Objective IV) in history, geography, economics and political science. However, some examples of questions within each of the objectives follow.

Objective I

Ages 13 and 17

(Before reading this exercise, give respondent the supplementary package opened to page 1.)

A. If you were to receive summaries of two new scientific studies on smoking, one of which was reported by the government and the other by the tobacco industry, which would you read? (Read ALL choices on the handout to respondent.)

- ○ *The government report only (Go to B)*
- ○ *The tobacco industry report only (Go to B)*
- ● *Both the government and the tobacco industry reports (Go to B)*
- ○ *Neither the government nor the tobacco industry report (Go to B)*
- ○ *I don't know. (Go to next exercise)*

No response (After TWENTY seconds, go to next exercise)

B. Please give a reason for your answer.

_____
_____
_____
_____
_____
_____

Objective II

Age 9

A boy looked in his history book, but he could not find out where Abraham Lincoln was born. Which one of the following should he do?

- ○ *Look in an atlas*
- ● *Look in an encyclopedia*
- ○ *Look in a geography book*
- ○ *Ask a friend to help him*
- ○ *I don't know.*

Age 17

Below is a discussion that was held in 1966. As you read it, try to decide what the two speakers primarily disagree about.

Speaker I: *The United States should fight a limited war in Vietnam while seeking a negotiated settlement. Winning of the war in itself won't do any good. The United States must aim instead at seeing that the South Vietnamese have improved education, democratic government, security of life, and then deal with poverty and the lack of medical care. Financial aid, advice, and technological know-how are what are really needed, but we can't make them effective while South Vietnam is being invaded.*

Speaker II: *Improving living conditions is a good idea, but our primary job is fighting. The United States can't permit itself to be pushed out of an area where it is committed. If we withdraw, we would be telling that part of the world threatened by Communist aggression that we either cannot or will not maintain our position. All that really matters is our power position in international affairs.*

What do the two speakers primarily disagree about?

- ○ *What power and poverty mean in international affairs*
- ○ *Whether the United States is actually capable of controlling South Vietnam by force*
- ● *The extent to which the United States should be involved in Vietnam and the motives for its involvement*
- ○ *Whether Communist aggression in Vietnam is worse than a lowered standard of living in the United States*
- ○ *I don't know.*

Objective III

Ages 13 and 17

Look at the cartoon following. What idea is the artist trying to put across in this cartoon?

_____
_____
_____
_____
_____
_____
_____

Richest Country In The World

Objective IV

Age 9

Below are listed four of the many jobs that are done in a city. Which one of the jobs is done by the health department?

- ○ *Selling food*
- ○ *Directing traffic*
- ○ *Putting out fires*
- ● *Inspecting restaurants*
- ○ *I don't know.*

Age 9

Which one of the following states borders on the Atlantic Ocean?

- ○ *California*
- ○ *Nebraska*
- ● *New York*
- ○ *Ohio*
- ○ *I don't know*

Ages 9, 13 and 17

When Columbus sailed across the Atlantic, would he have been able to do the following things at about that time in history?

C. Would he have been able to read a printed book?

- ● *Yes*
- ○ *No*
- ○ *I don't know.*

D. Would he have been able to travel fifty miles an hour?

- ○ *Yes*
- ● *No*
- ○ *I don't know.*

Ages 13 and 17

Which of the following things happen when a country becomes highly industrialized?

B. There is greater emphasis on individual craftsmanship.

- ○ *Yes*
- ● *No*
- ○ *I don't know.*

C. There is a movement of people from rural to urban parts of the country.

- ● *Yes*
- ○ *No*
- ○ *I don't know.*

Age 17

The term "monopoly" describes a situation in which the market price of goods and services is established by which one of the following?

- ○ *Many sellers*
- ○ *A single buyer*
- ○ *Many buyers and sellers*
- ● *A single seller or a small group of sellers*
- ○ *I don't know.*

Science

Science education must consider two groups

of students: those who may eventually pursue scientific careers and the great majority who will not. Science education must give those who will pursue science careers a realistic introduction to scientific work, but even more important, it must give those others adequate background to make the decisions about science that a democratic society demands of its citizens. The science objectives were developed out of such considerations as these. They express the hope that Americans would:

1. Know the fundamental aspects of science.

2. Understand and apply the fundamental aspects of science in a wide range of problem situations.

3. Appreciate the knowledges and processes of science.

Table A-3 shows the number of questions found within each of these broad objectives at each age level that appear in the summaries found in this report.

TABLE A-3. Hispanic Achievement Summary Data – The Number of Questions Within Each Science Objective

Objective I. Know the fundamental aspects of science

Age 9	40 Questions
Age 13	36 Questions
Age 17	34 Questions

Objective II. Understand and apply the fundamental aspects of science in a wide range of problem situations

Age 9	46 Questions
Age 13	27 Questions
Age 17	28 Questions

Objective III. Appreciate the knowledges and processes of science

Age 9	5 Questions
Age 13	2 Questions
Age 17	0 Questions

Table A-3 illustrates that almost all of the questions used in the summaries were from Objectives I and II. Some examples of these questions follow.

Objective I

Age 9

Which of the following insects spread serious human diseases?

- ○ *Ants*
- ○ *Honeybees*
- ● *Houseflies*
- ○ *Moths*
- ○ *I don't know.*

Ages 9 and 13

Each year the Earth moves once around

- ○ *Mars.*
- ○ *Venus.*
- ● *the Sun.*
- ○ *the Moon.*
- ○ *all of the other planets.*
- ○ *I don't know.*

Age 13

Green plants are important to animals because the plants

- ○ *consume both food and oxygen.*
- ○ *consume food and give off oxygen.*
- ○ *consume food and give off carbon dioxide.*
- ● *produce food and give off oxygen.*
- ○ *produce food and give off carbon dioxide.*
- ○ *I don't know.*

Age 17

Which of the following is used in the treatment of diabetes?

- ○ *Estrogen*

● *Insulin*

○ *Iodine*

○ *Penicillin*

○ *Thyroxine*

○ *I don't know.*

Objective II

Age 9

Which of the following will speed up the burning of a campfire?

● *Blow on the fire.*

○ *Cover the fire with sand.*

○ *Sprinkle dirt on the fire.*

○ *Sprinkle water on the fire.*

○ *I don't know.*

Ages 9 and 13

Tom wanted to find out whether plants can grow better in the dark or in the light. He put a pot with 6 radish seeds in a dark room and a pot with 6 bean seeds on the window sill.

He added the same amount of water to both pots. The bean seeds grew better than the radish seeds, so Tom said his plants grow best in the light.

To be able to say this, he should have

○ *watered both pots more.*

○ *watered the radish seeds more.*

● *put the same kind of seeds in both pots.*

○ *grown the seeds in water instead of soil.*

○ *I don't know.*

Age 17

In hot climates, the advantage of buildings with white surfaces is that white surfaces effectively

○ *absorb light.*

○ *diffract light.*

● *reflect light.*

○ *refract light.*

○ *transmit light.*

○ *I don't know.*

Age 17

Four of the following are statements of fact. Which statement is a hypothesis?

○ *The boiling point of water is 100° C.*

○ *A gallon of water weighs about 8 pounds.*

○ *Hydrogen was first prepared by Cavendish in 1766.*

○ *The Empire State Building is more than 50 stories high.*

● *The rings of Saturn were formed from a moon that exploded.*

○ *I don't know.*

Objective III

Age 9

Do you think that all scientists wear uniforms?

○ *Yes*

● *No*

○ *I don't know.*

Mathematics

The objectives of mathematics education can be described in terms of successive levels of developed abilities. Development of each level of ability can be demonstrated by performance of specific tasks appropriate to each age level. These tasks include content used in social, technical and academic settings.

The objectives used to measure Hispanic achievement were:

1. Recall and/or recognition of definitions, facts and symbols.

2. Performance of mathematical manipulations.

3. Understanding of mathematical concepts and processes.

4. Solving social, technical and academic mathematical problems.

5. The use of mathematics and mathematical reasoning to analyze problem situations, define problems, formulate hypotheses, make decisions and verify results.

Table A-4 shows the number of questions from each of these five objectives that went into the summaries at each age level.

TABLE A-4. Hispanic Achievement Summary Data—The Number of Questions Within Each Mathematics Objectives

Objective I. Recall and/or recognition of definitions, facts and symbols

Age 9	47 Questions
Age 13	58 Questions
Age 17	57 Questions

Objective II. Performance of mathematical manipulations

Age 9	59 Questions
Age 13	75 Questions
Age 17	68 Questions

Objective III. Understanding of mathematical/ concepts and processes

Age 9	20 Questions
Age 13	28 Questions
Age 17	30 Questions

Objective IV. Solving social, technical and academic mathematical problems

Age 9	34 Questions
Age 13	50 Questions
Age 17	81 Questions

Objective V. The use of mathematics and mathematical reasoning to analyze problem situations, define problems, formulate hypotheses, make decisions and verify results

Age 9	8 Questions
Age 13	10 Questions
Age 17	15 Questions

Examples within each of these objectives follow.

Objective I

Age 9

Counting by 10's, what number comes next?

10, 20, 30

ANSWER _____

Ages 13 and 17

If n is an odd number, what can you say about n + 1?

○ *It is always odd.*

● *It is always even.*

○ *It is even or odd depending upon what n is.*

○ *I don't know.*

Objective II

Age 9

A candy bar is broken into three pieces of the same size. Each piece is what part of the candy bar?

ANSWER _____

Ages 9 and 13

Do each of the problems below.

A. 3 + 0 =

ANSWER _____

B. 3 X 0 =

ANSWER _____

C. 3 - 0 =

ANSWER _____

Ages 9, 13 and 17

Which one of the following equals $\frac{47}{5}$ *?*

○ $4\frac{7}{5}$

● $9\frac{2}{5}$

○ $47\frac{1}{5}$

○ $47 \div \frac{1}{5}$

○ *I don't know.*

Ages 9, 13 and 17

Do the following subtraction:

$$\begin{array}{r} 1{,}054 \\ -865 \\ \hline \end{array}$$

ANSWER _____

Ages 13 and 17

What is the SMALLEST number that is divisible by 6, 9, and 12?

ANSWER _____

Objective III

Age 9

762 =

○ *7 + 6 + 2.*

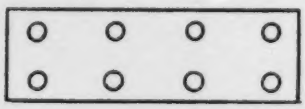
○ *7 + 60 + 200.*

● *700 + 60 + 2.*

○ *70 + 60 + 20.*

○ *I don't know.*

Age 9



If one-fourth of the dots in the above figure are removed, how many dots will be left?

ANSWER _____

Ages 13 and 17

A square has a perimeter of 12 inches. What is its AREA in square inches?

ANSWER _____

Objective IV

Age 9

An astronaut is to orbit the earth in a space capsule for seven days. If he drinks three pints of water each day, how many pints of drinking water will he need for the trip?

ANSWER _____

Ages 9, 13 and 17

If John drives at an average speed of 50 miles an hour, how many hours will it take him to drive 275 miles?

ANSWER _____

Age 17

If a + 3 = b and 3 + c = b, then

● *a equals c.*

○ *a is less than c.*

○ *c is greater than c.*

○ *there is not enough information to determine the relation between a and b.*

○ *I don't know.*

Objective V

Age 9

Dorothy washes windows at the rate of five minutes per window. To figure out how many minutes it will take her to wash ten windows, she could

○ *add 5 and 10.*

○ *divide 10 by 5.*

● *multiply 5 by 10.*

○ *subtract 5 from 10.*

○ *I don't know.*

Age 13

There are five black buttons and one red button in a jar. If you pull out one button at random, what is the probability that you will get the red button?

ANSWER _____

Ages 13 and 17

A housewife will pay the lowest price per ounce for rice if she buys it at the store which offers

- ○ *12 ounces for 40 cents.*
- ○ *14 ounces for 45 cents.*
- ● *1 pound, 12 ounces for 85 cents.*
- ○ *2 pounds for 99 cents.*
- ○ *I don't know.*

Age 17

For four games you have the following chances of gaining points:

Game A: *10 percent chance of gaining 20 points*

Game B: *20 percent chance of gaining 15 points*

Game C: *40 percent chance of gaining 10 points*

Game D: *50 percent chance of gaining 5 points*

In the long run, you would be most likely to gain the GREATEST number of points in

- ○ *Game A.*
- ○ *Game B.*
- ● *Game C.*
- ○ *Game D.*
- ○ *I don't know.*

Career and Occupational Development

Career and occupational development (COD) is unique to National Assessment in that the objectives of the area are not the education goals of any one school subject; COD objectives do not belong to a single discipline. Rather, the area includes many of the general achievements that result from general education and from guidance and counseling. These general achievements include accurate self-evaluation, thoughtful career planning, realistic attitudes toward work, employment-seeking skills, effective work habits and the development of skills generally useful in a variety of occupations.

In summarizing Hispanic achievement in this area, only cognitive questions were analyzed. The data found in this study only reflect whether or not students possess skills that are generally useful in the world of work.

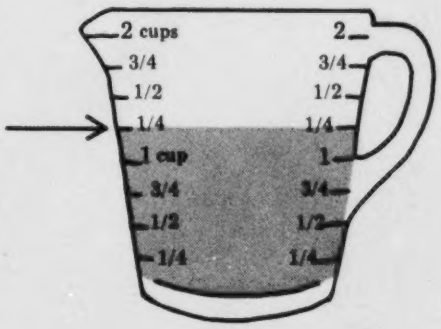
Between 35 and 70 items were used to gather data about student achievement at each age level for this report (see Table A-1) in the 1974-75 COD assessment. A few examples of the type of items used include:

Age 9

A. *45 seconds =* _____ *minutes*

B. *1 minute =* _____ *seconds*

Ages 9, 13 and 17

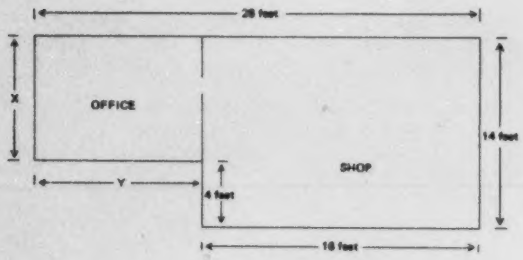


The measuring cup above is filled with water to the line marked by the arrow. How much water is in the measuring cup?

- ○ *¼ cup*
- ○ *1 cup*
- ● *1¼ cups*
- ○ *2¼ cups*
- ○ *I don't know.*

Ages 13 and 17

Below is a layout of an office and shop area:



A. How many feet long is the office at Side X?

ANSWER _____

B. How many feet long is the office at Side Y?

ANSWER _____

C. How many square feet of floor space are there in the office?

ANSWER _____

Age 17

Below are three ads from the Help Wanted section of a newspaper. Read all three ads and choose which job you would like best if you had to apply for one of them.

-Help Wanted-

OFFICE HELPER: experience in light typing and filing desirable but not necessary, must have 1 yr. high school math and be able to get along with people. $2.50/hr. to start. Start now. Good working conditions. Write to ACE Company, P. O. Box 100, Columbia, Texas 94082.

-Help Wanted-

SALESPERSON: some experience desirable but not necessary, must be willing to learn and be able to get along with people. $2.50/hr. to start. Job begins now. Write to ACE Shoestore, P. O. Box 100, Columbia, Texas 94082.

-Help Wanted-

APPRENTICE MECHANIC: some experience working on cars desirable but not necessary, must be willing to learn and be able to get along with people. $2.50/hr. to start. Job begins now. Write ACE Garage, P. O. Box 100, Columbia, Texas 94082.

Fill in the oval beside the ONE you choose.

On the next two pages, write a letter applying for the job that you chose. Write the letter as if you were actually trying to get the job. Use the name Dale Roberts.

Reading

The reading items in the Hispanic survey can be grouped into three broad categories: literal comprehension, inferential comprehension and reference skills.

The first category, literal comprehension, is defined as locating or remembering the exact meaning of a word, sentence or paragraph. Most literal-comprehension items ask students to recognize or identify a single fact, incident or idea presented in the reading material. Literal-comprehension items require students to utilize the conventions of written language as aids to comprehension and to demonstrate flexibility in adapting their rate of reading to suit the purpose and nature of the material. Some passages required readers to scan in order to locate specific information; others required skimming for an overall impression or reading for maximum comprehension.

Inferential comprehension, a higher-level reading skill, requires gleaning from a passage some idea that is not explicitly stated. In inferential comprehension, a reader uses the explicit information along with personal experiences and thinking abilities to make predictions, form generalizations, reach conclusions, make comparisons, form judgments and create new ideas.

Study skills are specialized skills that enable students to apply their reading behavior to

solve problems. These skills help students read to learn after they have learned to read. There are four basic study skills: reference skills enable the students to find the correct resources for needed information, locational skills aid the student in finding an answer in the resource, interpretational skills are needed for the student to correctly interpret the located information and organizational skills enable the student to efficiently organize information for later use. The reading assessment measured only reference and locational skills.

Table A-5 presents the number of questions in each of these three categories that went into the summaries of Hispanic student achievement.

TABLE A-5. Hispanic Achievement Summary Data – The Number of Questions Within Each Reading Category

Category 1. Literal Comprehension

Age 9	19 Questions
Age 13	52 Questions
Age 17	49 Questions

Category 2. Inferential Comprehension

Age 9	27 Questions
Age 13	24 Questions
Age 17	25 Questions

Category 3. Reference Skills

Age 9	8 Questions
Age 13	9 Questions
Age 17	11 Questions

Examples of items within each of these categories follow:

Literal Comprehension

Age 9

Read the story and answer the question on the next page.

My name is Gregory Gotrocks, and I live in Peoria, Illinois. I sell tractors. In June 1952, the Gotrocks Tractor Company (my dad happens to be the president) sent me to Nepal-Tibet to check on our sales office there.

Business was slow and I had a lot of time to kill. I decided to see Mt. Everest so that I could tell everyone back in Peoria that I had seen it.

It was beautiful. I was spellbound. I simply had to see what the view looked like from the top. So I started up the northwest slope. Everyone knows that this is the best route to take. It took me three long hours to reach the top, but the climb was well worth it.

Why was Gregory Gotrocks sent to Nepal-Tibet?

- ○ *To climb Mt. Everest*
- ○ *To get away from his father*
- ○ *To make his friends in Peoria jealous*
- ● *To check on his company's sales office*
- ○ *I don't know.*

Ages 13 and 17

Read the passage and answer the questions which follow it.

There is a myth, very popular these days, that the Court is divided into "liberal" and "conservative" wings, or, as some would put it, into "activists" and those who practice "judicial restraint." Labels of this kind are convenient but not accurate. Members of the Court, applying general constitutional provisions, understandably differ on occasion as to their mean and application. This is inevitable in the interpretation of a document that is both brief and general by a human institution composed of strong-minded and independent members charged with a grave and difficult responsibility. But the inappropriateness of these labels becomes apparent upon even the most perfunctory analysis.

A. The author describes the Constitution as which of the following?

- ● *Brief*
- ○ *Liberal*
- ○ *Specific*
- ○ *Perfunctory*
- ○ *Inapplicable to legal cases*
- ○ *I don't know.*

B. Who are the people with a "difficult responsibility"?

- ● *The members of the Court*

- ⬭ *Those who analyze the myth*
- ⬭ *The writers of the document*
- ⬭ *Those who believe in the myth*
- ⬭ *Those who disagree with the myth*
- ⬭ *I don't know.*

C. In line 7, what does the word "their" refer to?

- ⬭ *Citizens*
- ⬭ *Conservatives*
- ⬭ *Liberals*
- ⬭ *Members of the Court*
- ● *Provisions*
- ⬭ *I don't know.*

Ages 9, 13 and 17

How To Serve Meow-Wow Dinner

One 8-ounce cup per average-sized cat is the recommended daily amount.

Twice-a-day feeding is the general rule for most cats, so allow ½ cup for each meal.

Remember that some cats just naturally like to nibble often instead of having a full meal at one time. In this case, serve each cat a cupful of Meow-Wow Dinner once a day, allowing the cat to eat as much and as often as desired.

Until they reach three months old, feed kittens Meow-Wow Dinner wet about every four hours. Let them eat all they want.

Sometimes cats lose their appetites and do not eat for a day or two. If lack of appetite continues, it may be wise to consult a veterinarian.

Read the passage above and answer the questions below.

A. How should you feed a two-month-old kitten?

- ⬭ *Feed him only dry food*
- ⬭ *Feed him one 8-ounce cup of food a day*
- ⬭ *Feed him only once in the morning and once at night*
- ● *Feed him wet food three or four different times a day*
- ⬭ *I don't know.*

B. If your cat doesn't finish his bowl of food one morning, what should you do?

- ⬭ *Call the veterinarian*
- ⬭ *Take his bowl away until evening*
- ● *Leave the food in the bowl for him*
- ⬭ *Do not feed him until the next morning*
- ⬭ *I don't know.*

Inferential Comprehension

Ages 13 and 17

Here is an ad from a national magazine. Read it and complete the sentence on the next page.

As we all know, the mentally retarded can only make baskets and other simple objects like...

Computer subassemblies.
Printed circuits for electro[illegible] test sets.
Electric meters.
Automobile instrument panels.
Aircraft components.
Hospital supplies.

You already know that the retarded worker is generally more conscientious, loyal and punctual than the average employee.
Perhaps you have a few "simple" jobs he might do in your business.

For information about employing the retarded, write The President's Committee on Mental Retardation, Washington, D.C. 20201.

The purpose of this advertisement is to

- ● *Encourage industry to employ mentally retarded people*
- ○ *Show how mental retardation can be reduced in the population*
- ○ *Indicate that mentally retarded workers are superior to other workers*
- ○ *Show the general public that mentally retarded people can make simple things*
- ○ *I don't know.*

Age 9

Read the story and answer the question which follows it.

In the past, flies were a lot bigger than they are now. My father used to throw rocks at them. My grandfather used to shoot them with a gun. And my great-grandfather told me it used to take five men, a dog, two horses, and sixteen cats to drag a fly out of the kitchen.

Which sentence below tells you what the author wants you to do when you read this story?

- ○ *He wants you to kill flies*
- ○ *He wants you to buy a pet*
- ● *He wants you to think it is funny*
- ○ *He wants you to feel sorry for flies*
- ○ *I don't know.*

Reference Skills

Age 9

Where is the BEST place to find out about the Declaration of Independence?

- ○ *An atlas*
- ○ *A comic book*
- ○ *A dictionary*
- ● *An encyclopedia*
- ○ *A newspaper*
- ○ *I don't know.*

Ages 13 and 17

This is a directory from a newspaper. Look at it and answer the questions which follow it.

	Page		Page
Astrology	18	Local News	15-17
Bridge	18	Movies	21
Classified	33-40	Obituaries	32
Comics	20	Radio	22
Crossword	18	Sports	25-28
Editorial	47	Television	22
Financial	29-31	Weather	12
Letters to the Editor	17	Women	41-43

A. On what page would you look for today's television schedule?

_____

B. If you wanted to check the weather forecast, on what page would you look?

_____

C. Where would you look to check on the stock averages for the day?

_____

D. On what pages would you probably find beauty hints?

_____

E. Does the newspaper give information about playing bridge?

- ● *Yes*
- ○ *No*
- ○ *Cannot tell from the information given*
- ○ *I don't know.*

Sampling

The development of sample designs was based upon trade-offs between what National Assessment ought optimally to accomplish and what it could accomplish, given the available resources. Policy, data collection, analysis, reporting, cost and time considerations determined what types of sample designs were possible. The sample designs, in turn, put major constraints on the options available for data collection, analysis and reporting. For example, the limits placed on the number of administrations in a school and the size of group administrations (12 students) are a compromise between cost efficiency and practical feasibility considerations.

Design Specifications

The target populations in the years 1971-75 included 9-, 13- and 17-year-olds enrolled in public or private school, 17-year-olds who either left school before graduating or graduated early, and young adults 26 to 35 years old. However, due to small samples and the fact that the National Assessment survey is not specifically designed to collect data on Hispanos, only data for 9-, 13- and 17-year-old Hispanic students are shown here. Furthermore, age-eligible persons who were non-English speaking, institutionalized or handicapped (physically, mentally or emotionally) in such a way that they could not respond to the exercises as administered were excluded.

At each age level the sample for each package of exercises was designed to meet the following specifications:

1. Adequate representation of the subpopulations to allow estimation of the desired proportions with an acceptable level of precision.

2. Representation by at least one sample point for each of the states and the District of Columbia. The design was not, however, to provide for making comparisons among states, school districts, schools, teachers or individual students.

3. Facilitation of field-operating procedures.

National Assessment's policy that administration of materials was not to take more than one class period of a student's time, that the demands on school personnel were to be minimized (one package per student) and that the number of students assessed in any one school was to be limited to 12 also placed constraints on the sample design. Among other important sampling considerations were (1) that no more than about one-half of the group-administered packages were to be administered in any one school, (2) that the respondents taking each package were to be a probability subsample of the total sample for the age group. An additional requirement was that the design provide simple, precise estimates of population proportions.

To meet these specifications, a three-stage, deeply stratified cluster design with extra sampling of certain strata was developed.

In-School Sample Design, Stratification

In a stratified design the population is divided into two or more groups, or strata. Samples are then drawn from each stratum rather than from the population as a whole. The two major reasons for stratification are to insure representation of specified subpopulations and to achieve more precise estimates. National Assessment samples were stratified by geographic region and size of community.

Multistage Sampling

A multistage design involves sampling in successive steps or stages in order to control sampling and data collection costs.

In National Assessment's in-school sample design, the first stages — or primary sampling units (PSUs) — consisted of counties or groups of contiguous counties. A sampling frame of PSUs was constructed with U.S. Census data on the number of persons by age in each PSU. The PSUs were stratified by region, and within region by state, size of community and, for the two smaller size-of-community strata, by socioeconomic level. From this stratified list of PSUs, a probability sample of about 116 PSUs was independently drawn each year.

At the second stage, a list was made of all public and private schools in each selected PSU. The listing included the estimated number of 9-, 13- and 17-year-olds enrolled in each school. A secondary sample of schools was then drawn for each sample PSU. Schools in the two larger size-of-community strata were stratified by socioeconomic level prior to selecting the secondary sample.

In each selected school, the third-stage sampling units consisted of eligible students enrolled in the school. Every eligible student

was listed. A random sample of students was then drawn and randomly assigned one of the assessment packages scheduled for that school.

Sample Sizes

The size of a required sample is related to the type of administration, the minimum change to be detected with a given degree of confidence, the desired power, the sample design, operational procedures, time and cost. In accounting for these, National Assessment set the planned sample size for the in-school samples at 12 individuals per group-administration session and the planned national sample sizes at 2,592 for group-administered packages and 2,160 for individually administered packages.

One problem recognized in planning the sample sizes for the in-school assessment was the reduction in sample size due to absenteeism at the time of assessment. Therefore, to assure that the desired sample sizes were achieved, a random sample of 16 students was selected for each group administration. The first 12 students were assigned to the assessment session. The remaing 4, designated as alternates, were used to replace any of the 12 students who were absent at the time scheduled for the package administration. For each individual administration, 2 students were randomly selected, with the second serving as an alternate for the first. Special selection procedures were adopted for the in-school sample to accommodate schools enrolling less than the required number of students for one group administration. The allocations to those schools were in addition to the planned national sample sizes given above.

Administration of the Assessment

In-School Administration: 9-, 13- and 17-Year-Olds

Before the packages could be administered in the selected schools, cooperation had to be obtained from school personnel, and operational procedures had to be established between them and the administration-contractor's field staff. Chief state school officers were informed of all schools selected for the assessment within their respective states. The National Assessment staff director notified superintendents and private school officials that schools from their districts had been selected for participation. The superintendents also received materials from the sampling and administration contractor, which identified the selected schools in their districts, described the project and suggested dates for meetings with members of the field staff.

The field staff included 4 regional supervisors and 29 district supervisors. Each district supervisor met with the school officials in his district to explain the purpose of National Assessment, describe the operational procedures for completing the assessment and determine a time suitable for assessment in the area. The school officials were also asked to respond to principal's questionnaire items. Questions were asked about the school's enrollment in various grades, the types of communities in which the students lived, the general occupational levels of the parents in the community and, in the case of the science assessment, the type of science curriculum used by the school.

Each school principal appointed a coordinator who arranged for space to conduct the group and individual administrations and who worked with the district supervisor to arrange a mutually convenient schedule in the school and to ensure that students arrived on time for their scheduled administrations. The coordinator also arranged to provide a listing of each student born during the birth-date range defining National Assessment eligibility. The district supervisor used the listing to make a random selection of the students to be assessed; each student was assigned to receive one assessment package.

After the sample was selected in a school, package administrations were done by the district supervisor or by an exercise administrator hired locally and trained by the district

supervisor. The exercise administrators had various backgrounds including teaching, substitute teaching and survey research. Assessment time varied between schools depending upon the number of packages assigned to each school; only rarely did administrations within a school take more than three days.

The administrator coded each student's birth date, sex, grade and identification number on his or her package. The district supervisor checked all data coded on the packages against the student listing and instructed the school coordinator to save the listing for six months in case it might be needed for data verification. Since names are not associated with National Assessment packages, the listing that cross-referenced packages by identification numbers was the only means of verifying lost or questionable data. After the six-month period, the listing was destroyed to protect the anonymity of students who participated in the assessment.

APPENDIX B

DEFINITIONS OF NATIONAL ASSESSMENT HISPANIC-REPORTING CATEGORIES

National Assessment reporting populations for Hispanos include 9-, 13- and 17-year-olds enrolled in public or private schools. Within these age groups, results are reported by geographic region, sex and reported level of education.

With a few exceptions, the reporting populations include all age-eligible students in the 50 states and the District of Columbia. Age-eligible persons are excluded if they are.

1. Non-English speaking.
2. Institutionalized.
3. Physically, emotionally or mentally handicapped in such a way that they cannot respond to the exercises as administered.

National Assessment Groups

Sex

Results are reported separately for males and females at all age levels.

Parental Education

Parental education refers to the highest level of education level reported by the respondent for either parent.

Parents graduated from high school. This group includes students who reported that at least one parent had graduated high school or had some formal education beyond high school. This included any business, professional or trade school training as well as college or university training.

Parents not graduated from high school. This group includes students who reported that neither parent had any formal education beyond the eighth grade or that neither parent had graduated from high school.

Geographic Regions

Results are reported by two geographic regions as defined by the Office of Business Economics, Department of Commerce. The states in each region are shown in Table B-1.

TABLE B-1. Definitions of National Assessment Regional Subpopulations*

Northeast (NE)	West (W)
Connecticut	Alaska
Delaware	Arizona
District of Columbia	California
Maine	Colorado
Maryland	Hawaii
Massachusetts	Idaho
New Hampshire	Montana
New Jersey	Nevada
New York	New Mexico
Pennsylvania	Oklahoma
Rhode Island	Oregon
Vermont	Texas
	Utah
	Washington
	Wyoming

**These regional subpopulation definitions are the same as those used by the Office of Business Economics, Department of Commerce.*

NOTE: No Data are reported for the Southeastern or Central regions because of the small number of Hispanos that showed up in our sample.

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APPENDIX C

PROPORTION OF HISPANIC STUDENTS WITHIN THE NATIONAL ASSESSMENT SAMPLES

TABLE C-1. Weighted Percentages of Hispanos in National Assessment Samples*

	Percentages		
Learning Area	**Age 9**	**Age 13**	**Age 17**
Social studies	4.6	4.2	4.0
Science**	4.8	4.8	3.7
Mathematics	4.7	4.8	3.7
Career and occupational development	4.2	4.3	2.8
Reading	4.0	4.1	2.8
Average for four years	4.4	4.4	3.3

**Excludes non-English speaking, non-readers, institutionalized and physically, emotionally and mentally handicapped.*
***Science and math were given in the same year in the same primary sampling units.*

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APPENDIX D

REGIONAL PROPORTIONS OF HISPANIC STUDENTS WITHIN THE NATIONAL ASSESSMENT SAMPLES

TABLE D-1. Northeast Weighted Percentages of Hispanos by Age*

	Percentages		
Learning Area	**Age 9**	**Age 13**	**Age 17**
Social studies	0.7	0.6	0.6
Science	1.1	0.7	0.6
Mathematics	1.1	0.7	0.6
Career and occupational development	0.8	0.6	0.4
Reading	0.7	0.6	0.4
Average for four years	0.8	0.6	0.5

**Excludes non-English speaking, non-readers, institutionalized and physically, emotionally and mentally handicapped.*

TABLE D-2. West Weighted Percentages of Hispanos by Age*

	Percentages		
Learning Area	**Age 9**	**Age 13**	**Age 17**
Social studies	3.8	3.4	3.3
Science	3.1	3.5	2.8
Mathematics	3.0	3.6	2.7
Career and occupational development	2.9	3.2	1.9
Reading	3.0	3.3	2.2
Average for four years	3.2	3.4	2.5

**Excludes non-English speaking, non-readers, institutionalized and physically, emotionally and mentally handicapped.*

APPENDIX E

SPECIAL ANALYSES OF READING ITEMS

National Assessment has been able to perform two further analyses of the reading achievement that provide additional insight into the differences in student performance levels. These include age by grade-level information and distributions of students based on the number of items they answered correctly in a given package. These additional data are displayed on the following pages.

Achievement by Grade and Age

There appears to be a relationship between student achievement and the grade level of school for white, black and Hispanic students (Table E-1). Nine-year-olds in the 4th grade perform at higher levels than those in the 3rd grade. Thirteen-year-olds in the 8th grade do better than those in grade seven. Seventeen-year-olds in the 12th grade outperform those in the 11th or 10th grades. These trends are not surprising. However, it is important to compare the differing percentages of white, black and Hispanic students at each grade level to understand the potential impact of schooling on minority group achievement.

The percentage of Hispanic students in the lower grades at each age level is appreciably higher than the percentage of either black or white students. By age 17, over one-third of the Hispanic students are still at grade 10 or below. When the high drop-out rates for Hispanic students are considered, and we realize that our sample only represents the survivors of the system, these figures become quite alarming. Furthermore the difference between the achievement levels of Hispanic students that are in a grade appropriate for their age and those that are below grade level are quite dramatic.

Distributions of Student Scores in Each Reading Package

The distributions of white, black and Hispanic students by the number of items they answered correctly provide information that cannot be found by examining the summaries of mean percentages elsewhere in the text. While the means provide an accurate overall summary of group achievement, they tend to leave the impression that all students within a given group perform at a certain level. The distributions found in Exhibits E-1 through E-9 clearly point out the overlaps among white, black and Hispanic achievement. Many black and Hispanic students perform as well as or better than many white students.

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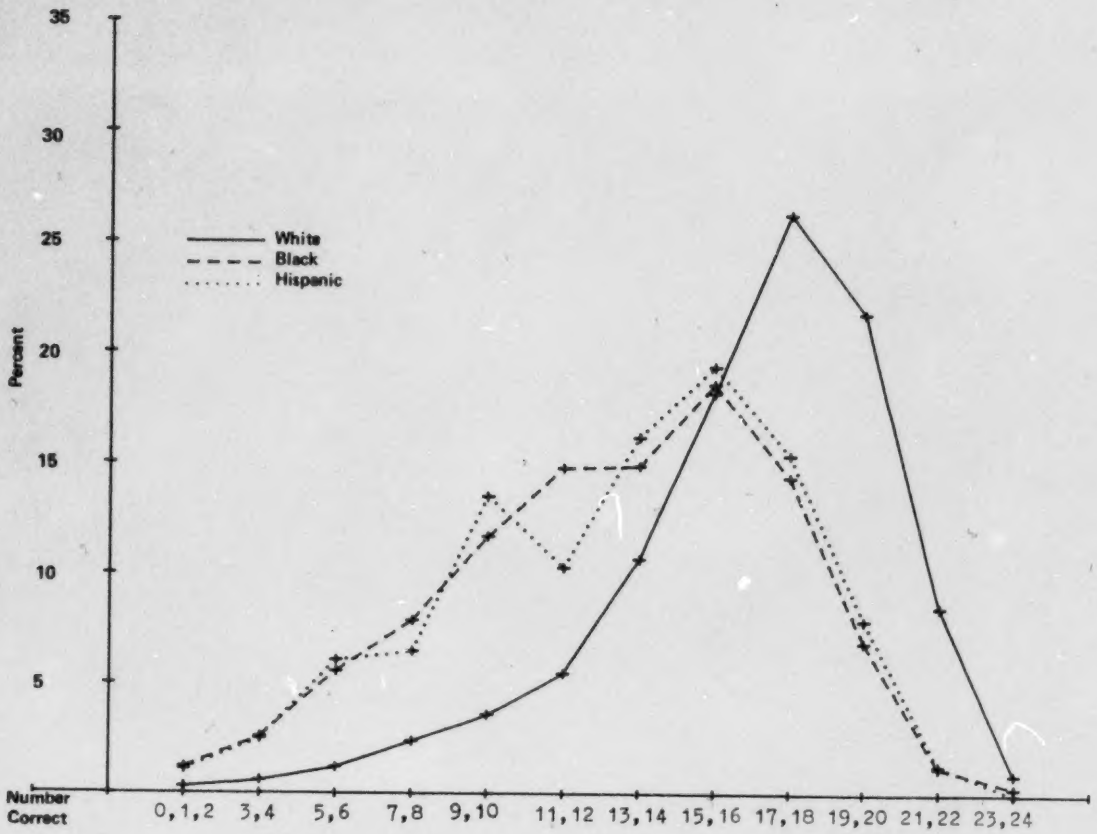
TABLE E-1. White-, Black- and Hispanic-Student Achievement Levels in Reading by Age and Grade in School

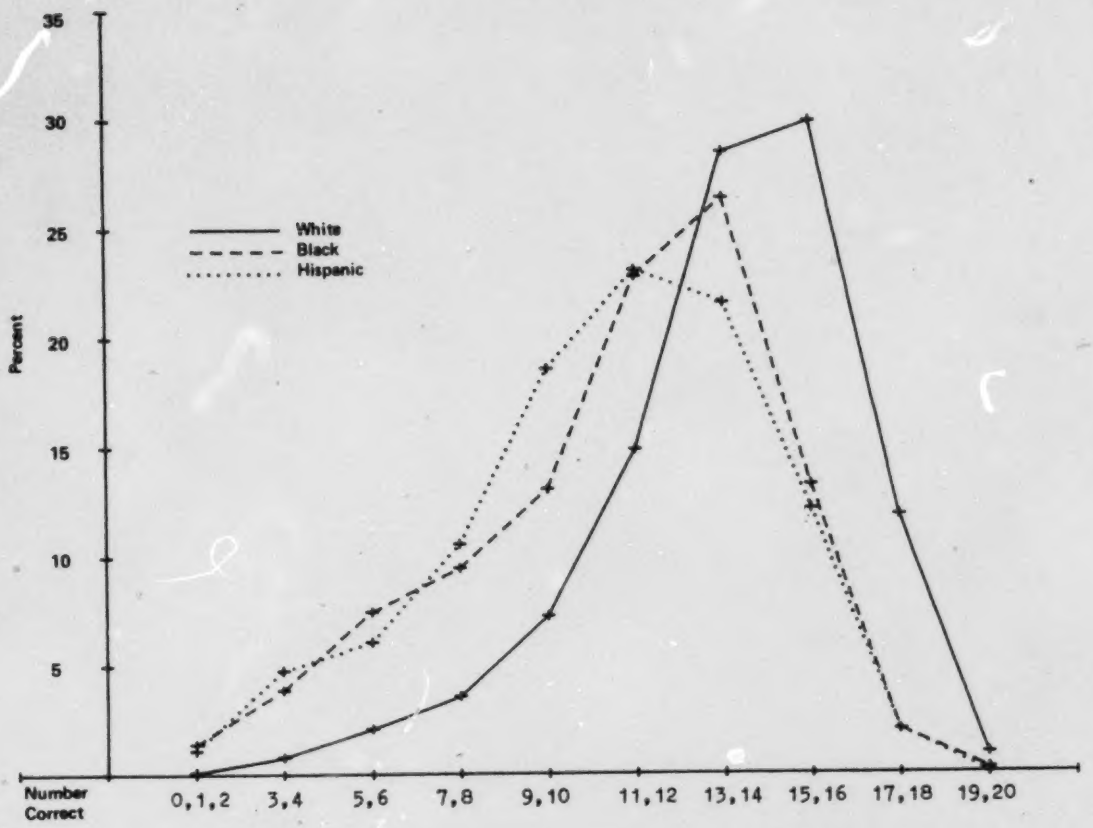
Grade	White			Black			Hispanic		
	Percentage Points Difference From Nation	Standard Error of Difference	Percentage of Age Population	Percentage Points Difference From Nation	Standard Error of Difference	Percentage of Age Population	Percentage Points Difference From Nation	Standard Error of Difference	Percentage of Age Population
Age 9									
3	-7.73	0.41	21.64	-20.89	0.87	22.52	-20.86	1.82	28.73
4	5.65	0.24	76.05	-7.47	0.59	72.65	-5.82	1.09	68.58
Other	-3.92	3.05	2.31	-16.30	4.39	4.83	-25.09	5.61	2.69
Age 13									
7	-6.22	0.43	24.09	-22.10	0.74	29.57	-16.77	1.52	36.69
8	6.14	0.26	73.64	-9.17	0.88	64.73	-4.62	0.84	53.27
Other	-11.69	2.06	2.28	-24.91	2.24	5.69	-22.88	3.50	10.04
Age 17									
10	-10.12	0.56	11.60	-26.17	1.04	22.28	-17.00	2.45	35.57
11	4.37	0.27	75.65	-12.79	0.71	61.13	-6.87	1.48	53.96
12	7.32	0.38	11.73	-9.73	1.68	12.11	-2.29	2.63	5.95
Other	-19.31	2.01	1.01	-35.42	2.17	4.48	-30.19	6.69	4.52

EXHIBIT E-1. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items– Age 9, Package 1



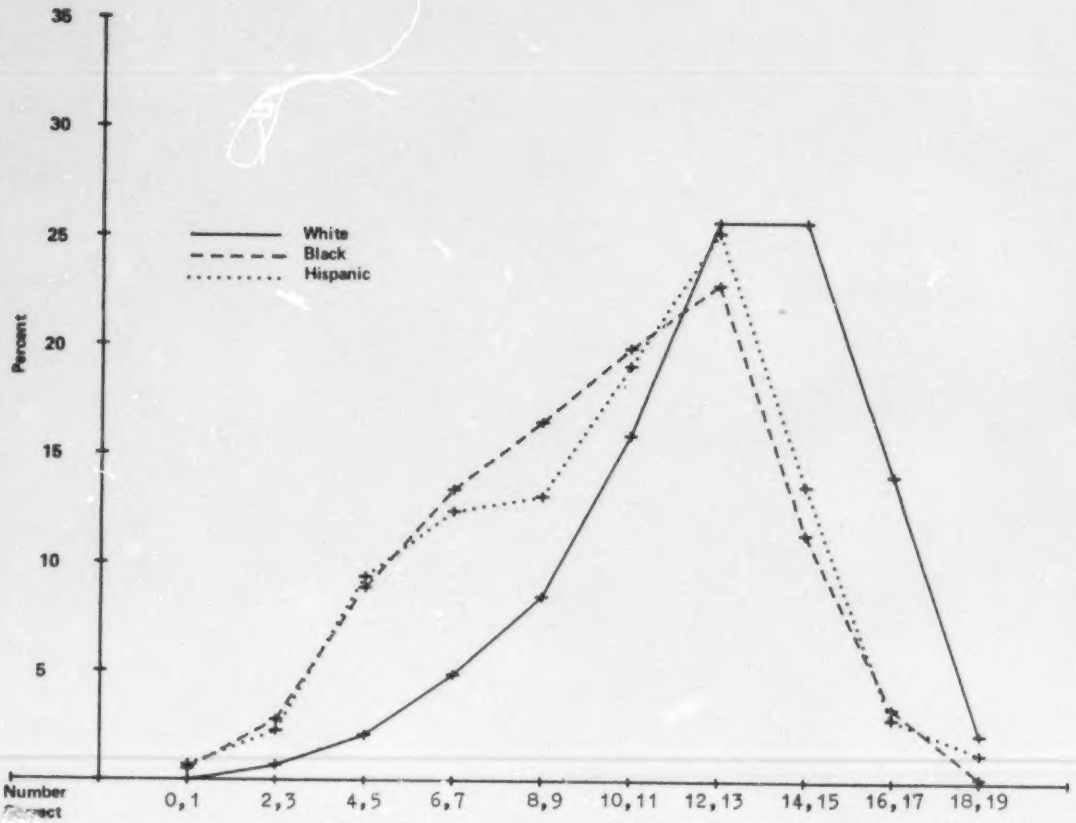
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2	0.30	1.20	1.10
3,4	0.60	2.60	2.50
5,6	1.20	5.60	6.10
7,8	2.40	7.90	6.50
9,10	3.60	11.70	13.50
11,12	5.50	14.80	10.30
13,14	10.70	14.90	16.20
15,16	18.20	18.60	19.40
17,18	26.30	14.40	15.40
19,20	21.60	6.90	7.90
21,22	8.50	1.20	1.30
23,24	0.90	0.30	0.00

EXHIBIT E-2. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 9, Package 2



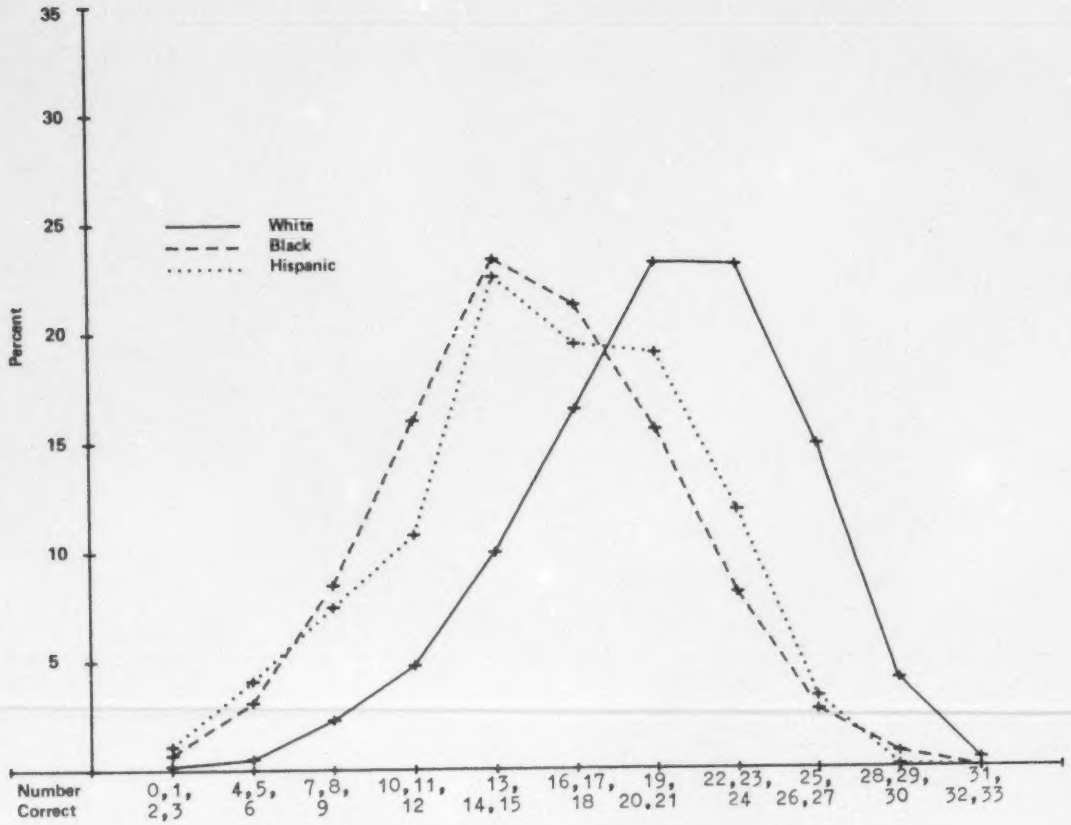
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2	0.10	1.40	1.10
3,4	0.80	3.90	4.80
5,6	2.10	7.50	6.10
7,8	3.60	9.50	10.60
9,10	7.30	13.10	18.60
11,12	14.90	22.80	23.10
13,14	28.50	26.40	21.60
15,16	29.90	13.30	12.20
17,18	11.90	2.00	2.00
19,20	0.90	0.20	0.00

EXHIBIT E-3. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 9, Package 3



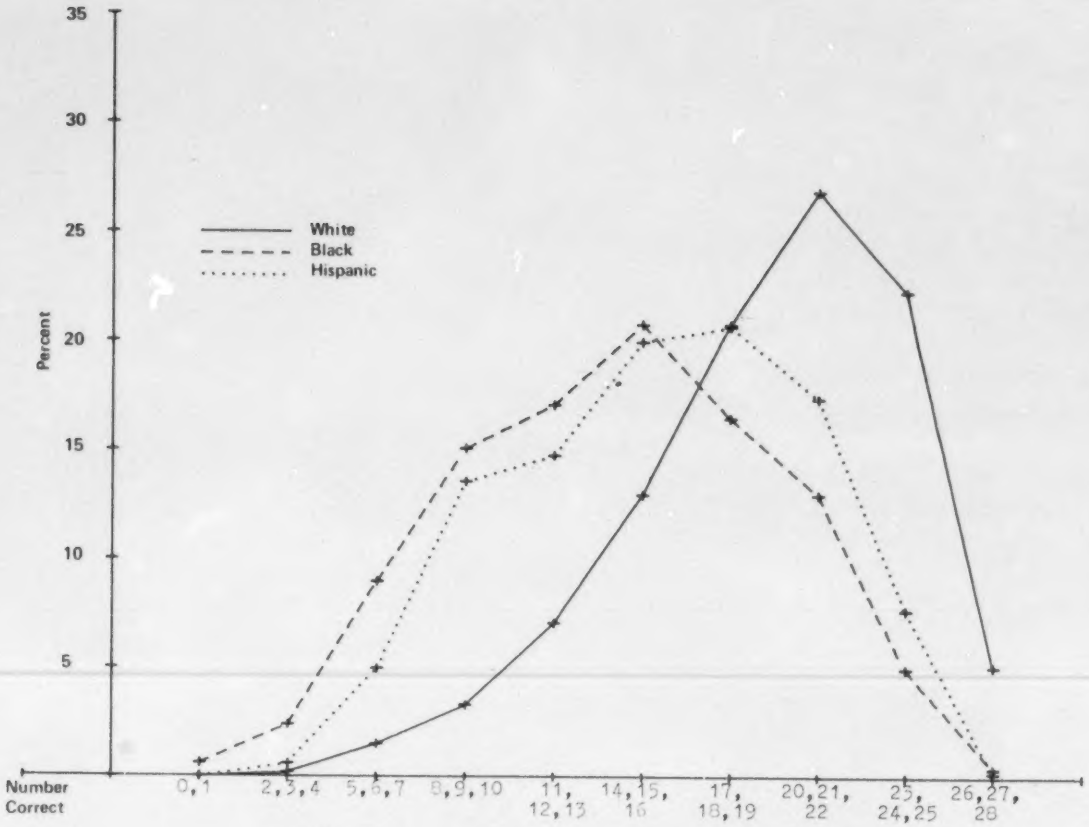
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1	0.00	0.50	0.70
2,3	0.70	2.80	2.30
4,5	2.10	8.90	9.40
6,7	4.90	13.40	12.40
8,9	8.50	16.50	13.10
10,11	15.90	19.90	19.10
12,13	25.70	22.80	25.20
14,15	25.70	11.40	13.60
16,17	14.10	3.40	2.90
18,19	2.20	0.20	1.30

EXHIBIT E-4. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 13, Package 1



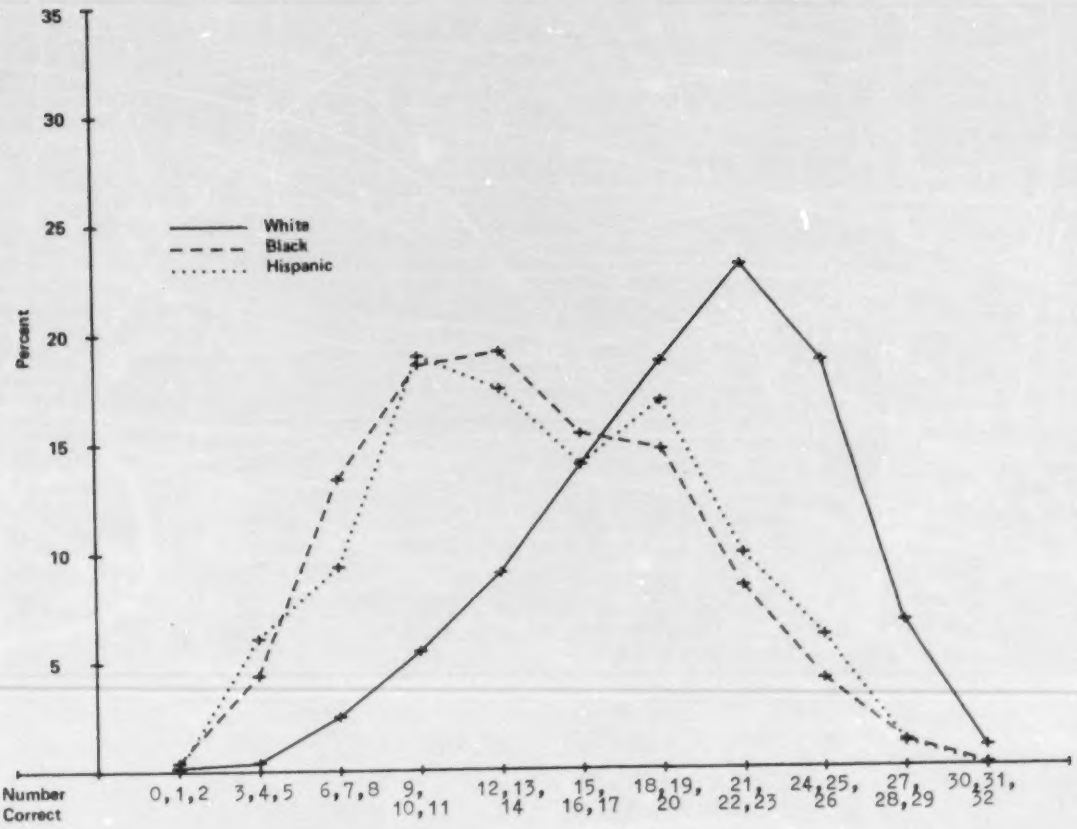
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2,3	0.20	0.70	1.10
4,5,6	0.50	3.10	4.10
7,8,9	2.30	8.50	7.50
10,11,12	4.80	16.00	10.80
13,14,15	10.00	23.40	22.60
16,17,18	16.50	21.30	19.50
19,20,21	23.20	15.60	19.10
22,23,24	23.10	8.10	11.90
25,26,27	14.90	2.70	3.30
28,29,30	4.10	0.70	0.10
31,32,33	0.40	0.00	0.00

EXHIBIT E-5. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 13, Package 2



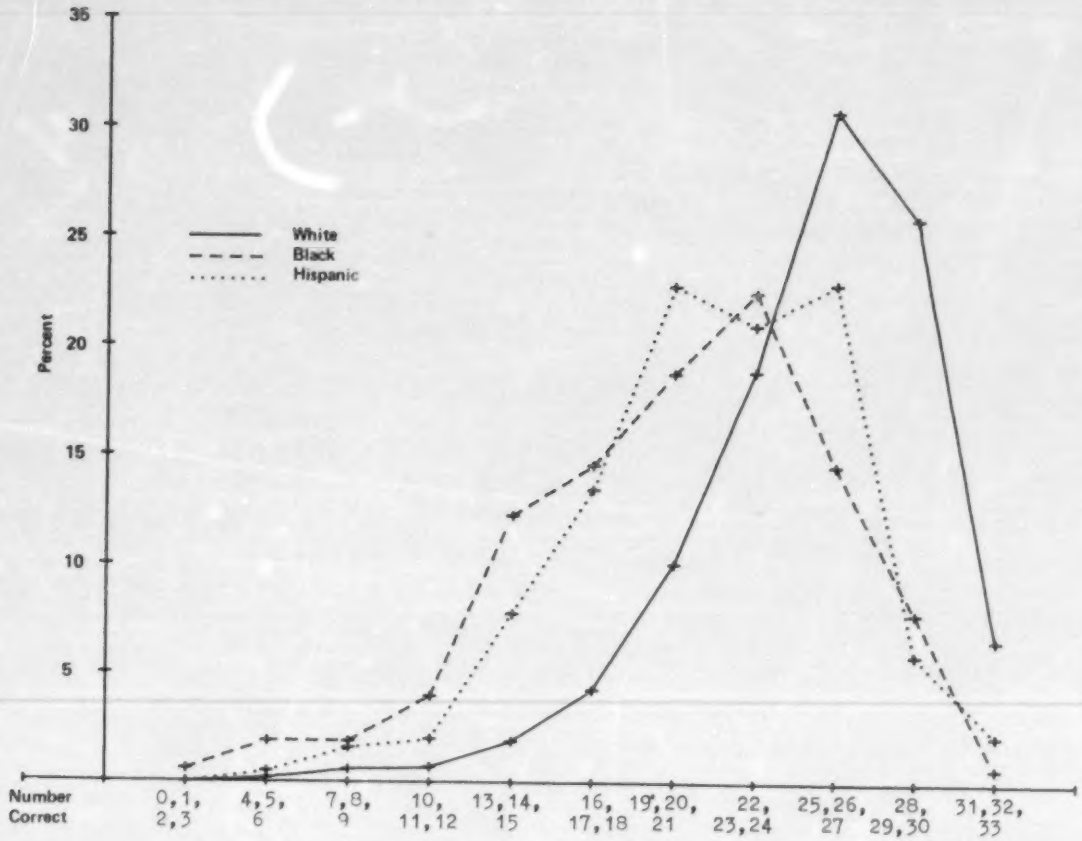
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1	0.00	0.60	0.00
2,3,4	0.20	2.40	0.60
5,6,7	1.50	9.00	5.00
8,9,10	3.30	15.10	13.60
11,12,13	7.10	17.10	14.80
14,15,16	13.00	20.80	20.00
17,18,19	20.80	16.50	20.70
20,21,22	26.90	13.00	17.40
23,24,25	22.30	5.00	7.70
26,27,28	5.10	0.40	0.20

EXHIBIT E-6. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 13, Package 3



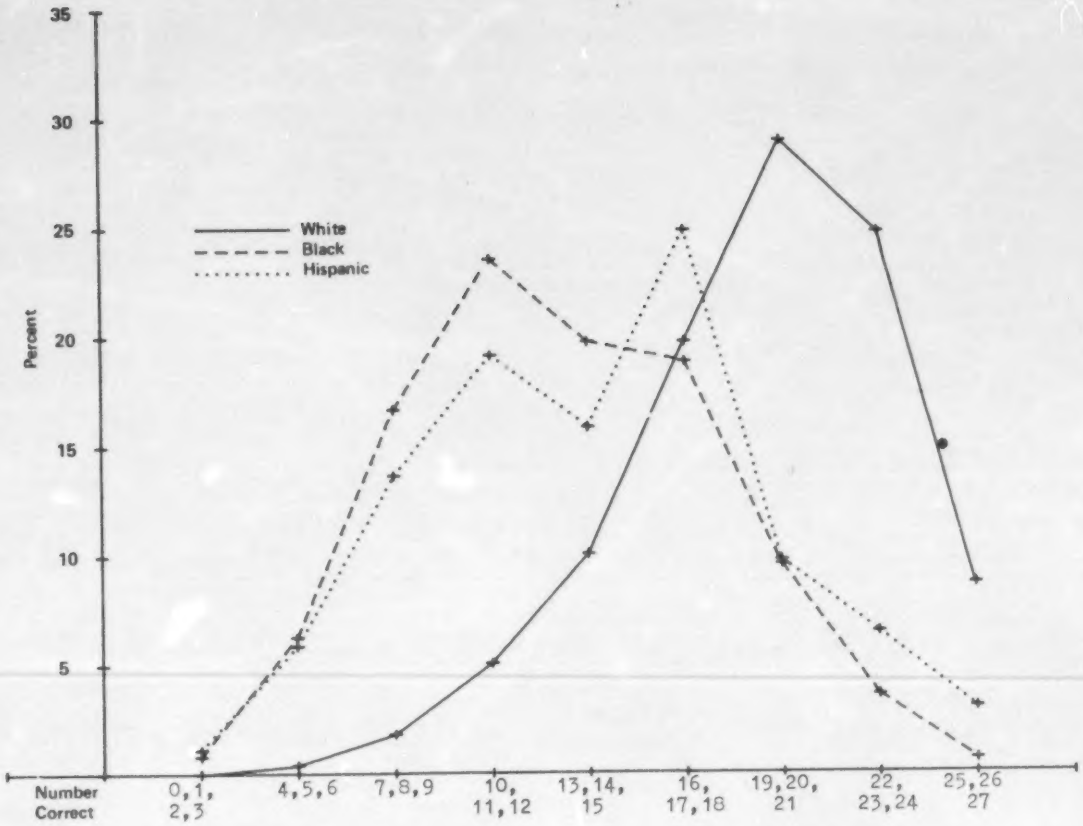
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2	0.20	0.40	0.10
3,4,5	0.40	4.40	6.10
6,7,8	2.50	13.40	9.40
9,10,11	5.50	18.60	19.00
12,13,14	9.10	19.20	17.50
15,16,17	14.00	15.40	14.00
18,19,20	18.70	14.70	16.90
21,22,23	23.10	8.40	9.90
24,25,26	18.70	4.10	6.10
27,28,29	6.70	1.20	1.10
30,31,32	0.90	0.10	0.00

EXHIBIT E-7. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 17, Package 1



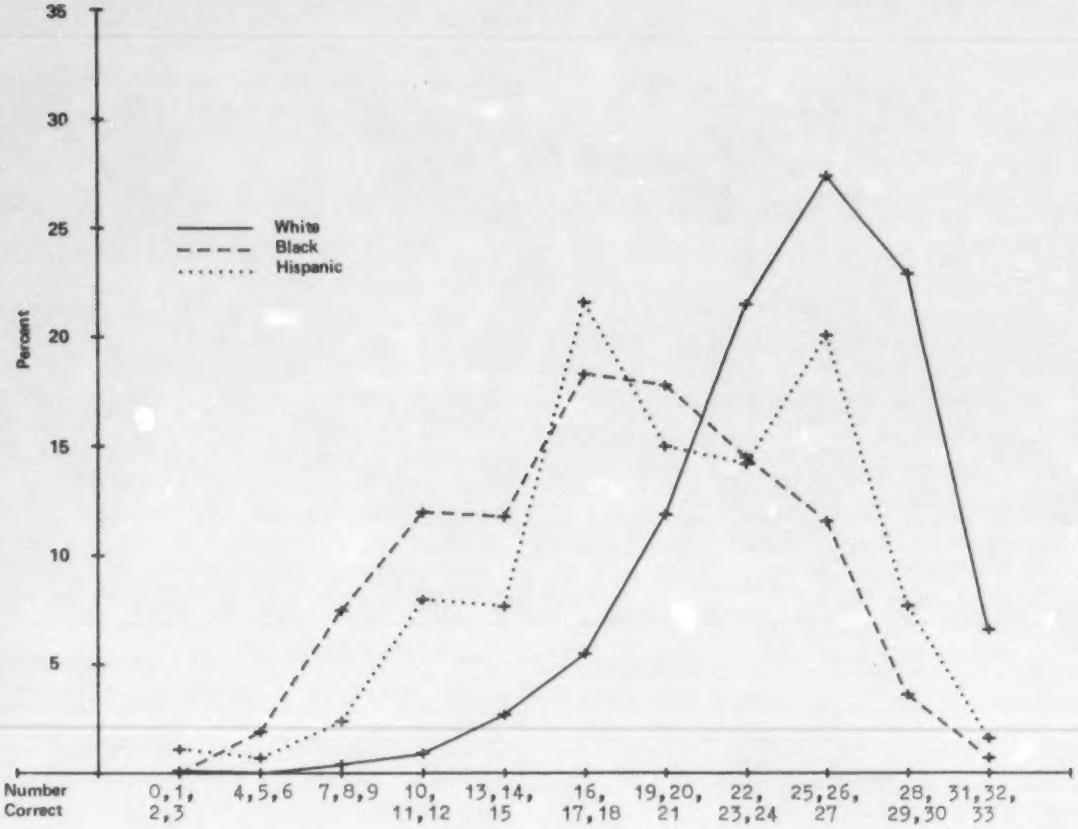
Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2,3	0.00	0.60	0.00
4,5,6	0.20	1.90	0.50
7,8,9	0.60	1.90	1.60
10,11,12	0.70	4.00	2.00
13,14,15	1.90	12.30	7.80
16,17,18	4.30	14.60	13.50
19,20,21	10.10	18.80	22.80
22,23,24	18.90	22.50	21.00
25,26,27	30.80	14.60	22.90
28,29,30	25.90	7.80	5.90
31,32,33	6.60	0.70	2.20

EXHIBIT E-8. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items – Age 17, Package 2



Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2,3	0.00	0.80	1.10
4,5,6	0.40	6.30	5.90
7,8,9	1.80	16.70	13.70
10,11,12	5.10	23.60	19.20
13,14,15	10.10	19.80	15.90
16,17,18	19.80	18.90	24.90
19,20,21	29.00	9.60	9.80
22,23,24	24.80	3.60	6.50
25,26,27	8.70	0.60	3.00

EXHIBIT E-9. Distribution of White, Black and Hispanic Students on Reading Exercises by Number of Correct Items — Age 17, Package 3



Number Correct	Percent White	Percent Black	Percent Hispanic
0,1,2,3	0.10	0.00	1.10
4,5,6	0.00	1.90	0.70
7,8,9	0.40	7.50	2.40
10,11,12	0.90	12.00	8.00
13,14,15	2.70	11.80	7.70
16,17,18	5.50	18.30	21.60
19,20,21	11.90	17.80	15.00
22,23,24	21.50	14.50	14.20
25,26,27	27.40	11.60	20.10
28,29,30	22.90	3.60	7.70
31,32,33	6.60	0.70	1.60

APPENDIX F

WHITE GROUP ACHIEVEMENT IN FIVE LEARNING AREAS

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TABLE F-1. The Difference Between Selected White Group Achievement and the Achievement of All 9-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 9-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All white 9-year-olds	2.73	0.30	13,840
Northeast	5.36	0.60	3,661
West	1.89	0.61	2,936
Male	3.70	0.40	6,909
Female	1.75	0.34	6,931
Parents not graduates of high school	-2.05	0.61	1,363
Parents graduates of high school	6.15	0.31	8,342
Science			
All white 9-year-olds	3.12	0.25	13,982
Northeast	4.53	0.57	3,701
West	4.00	0.71	3,264
Male	4.01	0.33	7,103
Female	2.19	0.27	6,879
Parents not graduates of high school	0.75	0.68	1,163
Parents graduates of high school	6.31	0.27	7,568
Mathematics			
All white 9-year-olds	2.76	0.24	19,051
Northeast	5.50	0.50	5,036
West	2.39	0.62	4,459
Male	3.17	0.28	9,671
Female	2.29	0.28	9,380
Parents not graduates of high school	-2.71	0.64	1,605
Parents graduates of high school	5.66	0.25	10,932
Career and Occupational Development			
All white 9-year-olds	3.23	0.26	19,986
Northeast	5.84	0.81	4,949
West	2.88	0.91	4,312
Male	2.66	0.41	10,005
Female	3.61	0.40	9,981
Parents not graduates of high school	-3.25	1.08	1,760
Parents graduates of high school	6.90	0.38	11,261
Reading			
All white 9-year-olds	2.54	0.21	16,882
Northeast	3.87	0.68	4,226
West	1.37	0.65	3,740
Male	0.43	0.25	8,507
Female	4.68	0.25	8,375
Parents not graduates of high school	-4.10	5.25	1,515
Parents graduates of high school	0.56	0.21	10,136

TABLE F-2. The Difference Between Selected White Group Achievement and the Achievement of All 13-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 13-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All white 13-year-olds	2.07	0.20	20,448
Northeast	4.28	0.48	5,188
West	1.00	0.54	4,567
Male	2.33	0.23	10,328
Female	1.77	0.24	10,120
Parents not graduates of high school	-4.01	0.55	2,977
Parents graduates of high school	4.27	0.23	15,425
Science			
All white 13-year-olds	3.49	0.32	17,796
Northeast	4.98	0.69	4,814
West	2.90	0.74	4,015
Male	5.62	0.37	8,903
Female	1.32	0.37	8,893
Parents not graduates of high school	-3.25	0.82	2,315
Parents graduates of high school	5.95	0.35	13,375
Mathematics			
All white 13-year-olds	3.74	0.35	22,847
Northeast	7.01	0.68	6,195
West	1.84	0.83	5,146
Male	4.33	0.40	11,421
Female	3.14	0.38	11,426
Parents not graduates of high school	-5.23	0.89	3,011
Parents graduates of high school	6.69	0.37	17,337
Career and Occupational Development			
All white 13-year-olds	3.50	0.34	22,085
Northeast	5.26	0.90	5,368
West	3.04	0.68	4,776
Male	3.34	0.40	11,009
Female	3.74	0.43	11,076
Parents not graduates of high school	-3.98	0.77	3,078
Parents graduates of high school	5.92	0.34	16,584
Reading			
All white 13-year-olds	2.73	0.22	16,963
Northeast	3.21	0.80	4,308
West	2.09	0.48	3,667
Male	-0.11	0.27	8,595
Female	5.62	0.26	8,368
Parents not graduates of high school	-4.45	0.46	2,140
Parents graduates of high school	4.97	0.24	13,106

TABLE F-3. The Difference Between Selected White Group Achievement and the Achievement of All 17-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All white 17-year-olds	2.39	0.21	22,690
Northeast	3.84	0.53	5,866
West	1.88	0.52	5,005
Male	3.32	0.26	11,187
Female	1.45	0.28	11,503
Parents not graduates of high school	-3.57	0.46	3,697
Parents graduates of high school	3.85	0.22	18,135
Science			
All white 17-year-olds	2.13	0.20	20,370
Northeast	3.35	0.63	5,516
West	1.59	0.64	4,740
Male	5.15	0.34	9,915
Female	-0.73	0.27	10,455
Parents not graduates of high school	-3.92	0.61	3,051
Parents graduates of high school	3.47	0.23	16,518
Mathematics			
All white 17-year-olds	3.63	0.32	25,427
Northeast	5.33	0.87	6,899
West	3.54	0.79	5,936
Male	6.17	0.41	12,422
Female	1.12	0.42	13,005
Parents not graduates of high school	-5.89	0.57	3,746
Parents graduates of high school	5.77	0.34	20,707
Career and Occupational Development			
All white 17-year-olds	2.19	0.19	20,892
Northeast	2.56	0.52	5,209
West	0.96	0.63	4,594
Male	2.17	0.36	10,205
Female	2.16	0.33	10,687
Parents not graduates of high school	-2.74	0.68	3,033
Parents graduates of high school	3.20	0.26	17,343
Reading			
All white 17-year-olds	2.78	0.22	16,301
Northeast	3.54	0.52	4,142
West	1.52	0.51	3,598
Male	0.84	0.28	7,990
Female	4.64	0.27	8,311
Parents not graduates of high school	-3.88	0.42	2,226
Parents graduates of high school	4.16	0.25	13,663

APPENDIX G

BLACK GROUP ACHIEVEMENT IN FIVE LEARNING AREAS

TABLE G-1. The Difference Between Selected Black Group Achievement and the Achievement of All 9-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 9-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All black 9-year-olds	-12.16	0.62	2,715
Northeast	-6.75	1.06	524
West	-14.43	1.42	509
Male	-12.50	0.69	1,304
Female	-11.93	0.82	1,411
Parents not graduates of high school	-15.63	1.09	384
Parents graduates of high school	-8.88	0.97	1,341
Science			
All black 9-year-olds	-13.36	0.58	3,265
Northeast	-11.19	0.90	657
West	-13.01	1.24	391
Male	-12.95	0.64	1,508
Female	-13.76	0.65	1,757
Parents not graduates of h	-14.61	1.05	478
Parents graduates of high	-10.43	0.62	1,385
Mathematics			
All black 9-year-olds	-12.38	0.54	4,473
Northeast	-9.62	1.04	924
West	-13.18	1.70	540
Male	-12.71	0.63	2,086
Female	-12.10	0.58	2,387
Parents not graduates of high school	-14.38	0.87	649
Parents graduates of high school	-10.20	0.66	1,964
Career and Occupational Development			
All black 9-year-olds	-14.21	1.18	4,179
Northeast	-8.63	2.96	950
West	-13.01	1.70	644
Male	-15.96	1.22	2,034
Female	-12.40	1.43	2,145
Parents not graduates of high school	-19.05	1.77	549
Parents graduates of high school	-11.84	1.61	1,942
Reading			
All black 9-year-olds	-10.94	0.58	3,610
Northeast	-9.16	0.89	897
West	-12.27	1.04	405
Male	-14.23	0.59	1,704
Female	-8.04	0.63	1,906
Parents not g duates of high school	-16.20	1.02	525
Parents graduates of high school	-8.57	0.57	1,823

TABLE G-2. The Difference Between Selected Black Group Achievement and the Achievement of All 13-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 13-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All black 13-year-olds	-12.42	0.79	3,366
Northeast	-10.21	1.27	730
West	-11.49	1.25	429
Male	-12.53	0.69	1,594
Female	-12.35	1.03	1,772
Parents not graduates of high school	-15.69	1.42	856
Parents graduates of high school	-8.85	0.96	1,629
Science			
All black 13-year-olds	-16.63	0.60	3,922
Northeast	-14.69	1.70	734
West	-16.50	1.78	539
Male	-15.34	0.77	1,889
Female	-17.91	0.74	2,033
Parents not graduates of high school	-17.46	0.80	860
Parents graduates of high school	-14.26	0.77	2,013
Mathematics			
All black 13-year-olds	-18.23	0.68	5,094
Northeast	-14.96	1.76	966
West	-18.45	1.88	708
Male	-18.55	0.80	2,418
Female	-17.90	0.71	2,676
Parents not graduates of high school	-20.91	0.90	1,176
Parents graduates of high school	-15.17	0.78	2,631
Career and Occupational Development			
All black 13-year-olds	-18.77	0.72	4,404
Northeast	-15.30	1.52	1,003
West	-20.19	1.72	608
Male	-19.26	1.00	2,051
Female	-18.32	0.90	2,353
Parents not graduates of high school	-23.59	1.08	985
Parents graduates of high school	-14.21	0.73	2,271
Reading			
All black 13-year-olds	-13.95	0.61	3,208
Northeast	-11.37	0.95	892
West	-18.65	1.60	318
Male	-17.04	0.70	1,497
Female	-11.32	0.70	1,711
Parents not graduates of high school	-17.63	1.00	644
Parents graduates of high school	-10.48	0.73	1,834

TABLE G-3. The Difference Between Selected Black Group Achievement and the Achievement of All 17-Year-Olds in Five Learning Areas

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All black 17-year-olds	-13.56	0.56	3,464
Northeast	-10.48	0.85	605
West	-15.19	1.21	556
Male	-13.31	0.71	1,552
Female	-13.72	0.71	1,912
Parents not graduates of high school	-16.12	0.76	1,201
Parents graduates of high school	-9.93	0.53	1,889
Science			
All black 17-year-olds	-10.32	0.61	3,936
Northeast	-9.28	1.01	580
West	-10.95	1.15	578
Male	-8.95	0.73	1,758
Female	-11.41	0.72	2,178
Parents not graduates of high school	-10.07	0.56	1,281
Parents graduates of high school	-9.23	0.87	2,088
Mathematics			
All black 17-year-olds	-19.83	0.60	4,999
Northeast	-16.58	1.79	774
West	-19.86	1.05	715
Male	-18.73	0.71	2,243
Female	-20.75	0.72	2,756
Parents not graduates of high school	-23.67	0.79	1,671
Parents graduates of high school	-16.82	0.59	2,628
Career and Occupational Development			
All black 17-year-olds	-15.96	0.89	3,087
Northeast	-15.57	2.34	528
West	-17.71	1.39	466
Male	-17.24	1.29	1,472
Female	-14.85	1.06	1,615
Parents not graduates of high school	-18.00	1.29	1,003
Parents graduates of high school	-13.67	1.11	1,814
Reading			
All black 17-year-olds	-16.44	0.74	2,523
Northeast	-13.99	1.61	551
West	-20.01	3.35	235
Male	-19.24	0.90	1,170
Female	-14.05	0.94	1,353
Parents not graduates of high school	-19.39	0.85	794
Parents graduates of high school	-12.98	1.03	1,420

APPENDIX H

CONFERENCE ON HISPANIC STUDENT ACHIEVEMENT

On November 13 and 14, 1976, National Assessment sponsored a national conference on Hispanic student achievement. The conference, held in New York, was hosted by the Institute for Urban and Minority Education at Columbia University. During the course of the conference, participants were asked to react to a preliminary draft of this report and suggest revisions. Participants were further asked to respond to a revised draft that was a result of the November conference. The final report reflects many of their suggestions and concerns.

Conference Participants

- Gladys Correa, supervisor of Bilingual Education, New York City
- Robert Crane, senior writer, National Assessment
- Roy Forbes, project director, National Assessment
- Jose Martinez, Office of Program Evaluation & Research, California State Department of Education
- Maria Montalvo, chief of Elementary & Secondary Education, Department of Health, Education and Welfare, Office of Civil Rights, Boston
- Shirley Munoz-Hernandez, senior research associate, Bilingual General Assistance Center, Columbia University
- Maria Ramirez, coordinator of Bilingual Education, New York State Education Department
- Carlos Saavedra, director Bilingual Bicultural Unit, Colorado Department of Education
- Donald Searls, director of Statistical Methods, National Assessment
- Moises Venegas, director Teachers Corp., University of Southern Colorado

Conference Observers

- Irwin Flaxman, associate director, Institute for Urban and Minority Education, Columbia University
- Madilyn Hammond, Department of Health, Education and Welfare, Office of Civil Rights, Region 2

- Enilda Lozada, Arawak Corporation, New York
- William Milan, senior research associate, Bilingual General Assistance Center, Columbia University
- Tongsoo Song, project officer, National Center for Education Statistics
- Clara Valasquez, associate director, Bilingual General Assistance Center, Columbia University
- Dorothy Waggoner, Bilingual Studies Group, National Center for Education Statistics
- Helen Whitney, Department of Health, Education and Welfare, Office of Civil Rights, Region 2

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